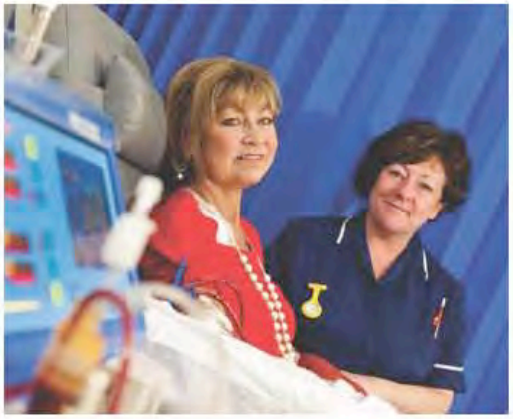
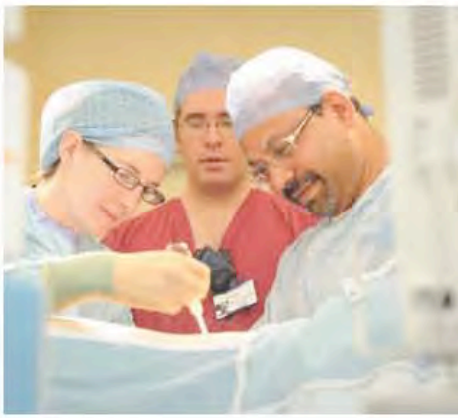
NHS
Blood and Transplant

Organ Donation and Transplantation

Activity Report 2011/12





Preface

This report has been produced by Statistics and Clinical Audit, NHS Blood and Transplant.

All figures quoted in this report are as reported to NHS Blood and Transplant by 17 June 2012 for the UK Transplant Registry, maintained on behalf of the transplant community and National Health Service (NHS), or for the NHS Organ Donor Register, maintained on behalf of the UK Health Departments.

The information provided in the tables and figures given in Chapters 2-10 does not always distinguish between adult and paediatric transplantation. For the most part, the data also do not distinguish between patients entitled to NHS treatment (Group 1 patients) and those who are not (Group 2 patients). It should also be noted that not all cornea donors or cornea grafts are necessarily reported to NHS Blood and Transplant.

The UK definition of an organ donor is any donor from whom at least one organ has been retrieved with the intention to transplant. Organs retrieved solely for research purposes have not been counted in this Activity Report. Organ donation has been recorded to reflect the number of organs retrieved. For example, if both lungs were retrieved, two lungs are recorded even if they were both used in one transplant. Similarly, if one liver is donated, one liver is recorded even if it results in two or more transplants.

The number of donors after brain death (DBD) and donors after circulatory death (DCD) by hospital are documented in **Appendix I**. Donation and transplant rates in this report are presented per million population (pmp): population figures used throughout this report are mid-2010 estimates based on *ONS 2001 Census* figures and are given in **Appendix III.**

All charts presented in this report are available as an accompanying slide set available from www.organdonation.nhs.uk.

Acknowledgement

NHS Blood and Transplant would like to thank all those in the donation and transplantation communities responsible for providing data to the UK Transplant Registry and the Potential Donor Audit, without whom this report would not be possible. Thanks also go to NHS Blood and Transplant staff responsible for data entry and accuracy and completeness of the data.

Foreword

I am delighted to be writing this foreword to the Transplant Activity Report for 2011-12 which details the continuing, overall upward trend in organ donation and transplantation.

In 2007-08 the Organ Donation Taskforce (ODTF) published fourteen recommendations for increasing deceased donation and NHS Blood and Transplant took responsibility for implementing seven of these. Since then, our efforts have been concentrated on creating the infrastructure identified as crucial to improving the rates of organ donation in the UK and supporting our clinical partners in the wider NHS to change practice and make organ donation usual rather than unusual.

Much of the necessary structure and systems are now established and the Clinical Leads for Organ Donation, together with their Donation Committee Chairs and Specialist Nurses have worked hard to ensure we are on target to meet the ODTF's challenge of achieving 50% growth in donation by 2013.

For the seventh year in succession, the number of organ transplants in the UK has increased. In 2011-12, 3,960 transplants were performed, 6% more than the previous year.

The number of deceased organ donors is also continuing to increase year on year.
There was a total of 1,088 deceased donors last year, 8% more than in the previous year.

The sharp rise in donation after circulatory death (DCD) has been sustained, with a 17% increase over the past year although the increase in donation after brain death has unfortunately been much more modest at 2%.

Living organ donors continue to play a vital role in transplantation and account for half of the total number of organ donors. In 2011-12 just over 36% of kidneys transplanted were from living donors. Of the 1,009 patients receiving a living donor transplant, 35 were non-directed altruistic donor transplants and 51 paired/ pooled transplants.

The investment in the eye retrieval schemes are paying dividends with a further increase in donation in 2011-12, bringing the total increase in the past three years to 42%. More than 33% of organ donors also donated their corneas and this is further helping to increase the supply of corneas. We are now in the fortunate position where the CTS Manchester and Bristol eye banks currently have sufficient corneal tissue to allow Trusts to order corneas for surgical availability as and when they are needed.

We are committed to continuing the development of NHSBT as the UK wide Organ Donation Organisation envisaged by the report of the first ODTF. During 2012-13 we will be working with our stakeholders to develop a new strategy for organ donation, mapping out our direction beyond 2013.

E. Sally Johnson
Director of Organ Donation and Transplantation,
NHS Blood and Transplant.

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Summary of Donor and Transplant Activity

In the financial year to 31 March 2012, compared with the previous year

- there was an 8% increase in the number of deceased donors to 1,088, the largest number ever in the UK
- the number of donors after brain death increased by 2% to 652, while the number of donors after circulatory death increased by 17% to 436
- the number of living donors increased by 1% to 1,055; living donors account for half of the total number of organ donors
- the number of patients whose lives were saved or improved by an organ transplant increased by 6% to 3,960
- 3,521 patients had their sight restored through a cornea transplant, representing a decrease of 1%

The total number of patients registered for a transplant has fallen slightly, so that:

- there were 7,636 patients waiting for a transplant at the end of March 2012, with a further 2,880 temporarily suspended from transplant lists
- 508 patients died while on the active waiting list for their transplant and a further 819 were removed from the transplant list. The removals were mostly as a result of deteriorating health and ineligibility for transplant and many of these patients would have died shortly afterwards.

Some of the other key messages from this report are that, compared with last year, there has been:

- an increase of 15% in the number of pancreas transplants
- an increase of 12% in the total number of liver transplants
- an increase of 6% in the total number of cardiothoracic organ transplants
- an increase of 4% in the total number of kidney transplants
- an increase of 2% in the number of potential organ donors identified to 4094 in 2011-12
- an increase in the referral rate of possible deceased donors to Specialist Nurses – Organ Donation (SNODs) from 52% to 60%

Overview of Organ Donation and Transplantation

A summary of the main features of organ donation and transplantation activity in the UK during the financial year from 1 April 2011 to 31 March 2012

2.1 Summary of activity

As the total number of deceased donors and transplants continued to increase this year, the number of patients on the active transplant list at 31 March 2012 is 164 less than on the same date last year. This fall is unlikely to reflect a true decrease in the need for transplantation. The increase in donor and transplant numbers (1 April 2002 to 31 March 2012) and the number of patients registered on the transplant lists at 31 March each year are shown in **Figure 2.1**. There were 210 more deceased donor transplants in 2011-2012 than in the previous year, representing an 8% increase. The corresponding increase in the number of deceased donors was 8%.

Figure 2.1 Number of deceased donors and transplants in the UK, 1 April 2002 - 31 March 2012, and patients on the active transplant lists at 31 March

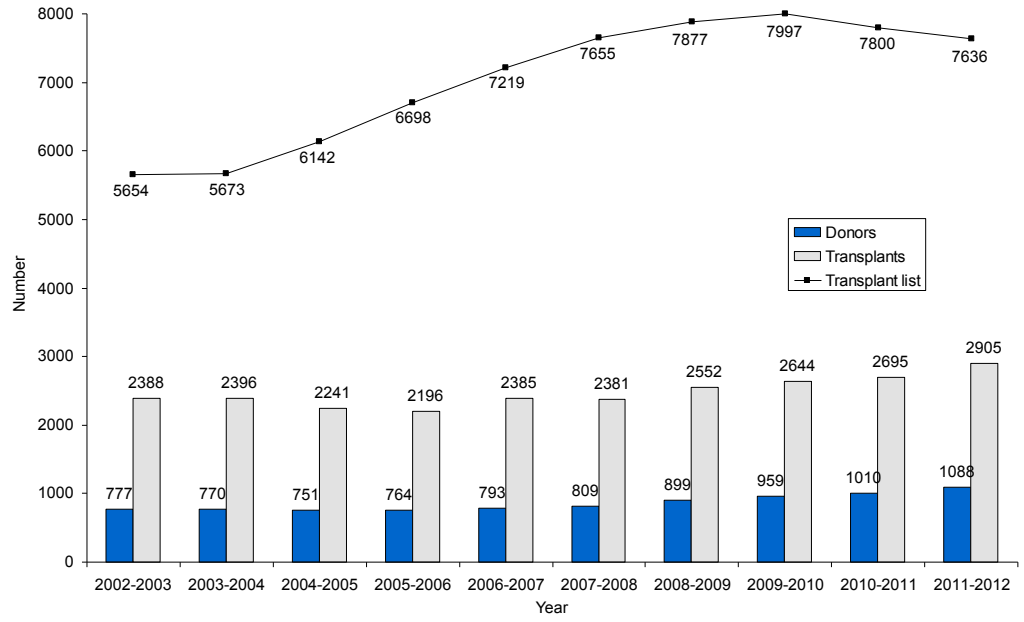
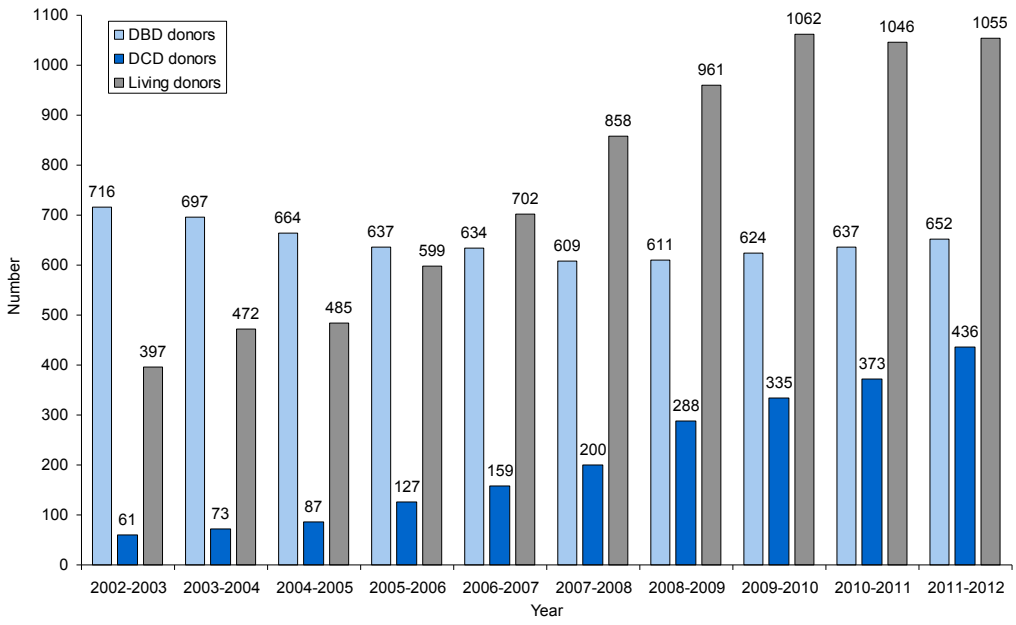


Figure 2.2 shows the number of deceased and living donors for 2002-2012. The number of deceased organ donors in the UK fell over a number of years but following the implementation of the Organ Donation Taskforce recommendations, the numbers rose and are continuing to increase. The number of donors after brain death (DBD) has increased by 7% over the last four years, reversing the trend which had seen a 15% decrease between 2002/2003 and 2007/2008. The number of donors after circulatory death (DCD) has been increasing year-on-year in an effort to bridge the gap between the number of donors and the number of patients waiting for a transplant. In particular the number of these donors has increased by 118% since 2007/2008. Living donors remained relatively stable, 1,055 this year, representing a 1% increase on last year.

Figure 2.2 Number of deceased and living donors in the UK, 1 April 2002 - 31 March 2012



2.2 Transplant list

At 31 March 2012, 10,516 patients were registered for an organ transplant in the UK. Of these, 2,880 (27%) patients were temporarily suspended from the active national transplant list because they were unfit or otherwise unavailable for transplant. Details of numbers of patients on each of the organ transplant lists are given in **Table 2.1** for 31 March 2011 and 2012. The total number fell by 164 patients (2%).

Table 2.1 Active transplant lists in the UK at 31 March 2011 and 2012

	2011	2012	% Change
Kidney & pancreas patients	**6921**	**6669**	**-4**
Kidney	6599	6417	-3
Kidney & pancreas	250	193	-23
Pancreas	48	35	-27
Pancreas islets	24	24	0
Cardiothoracic patients	**354**	**399**	**+13**
Heart	129	167	+29
Heart/lung	13	16	+23
Lung(s)	212	216	+2
Liver patients	**491**	**534**	**+9**
Intestinal patients[1,2]	**14**	**13**	**-7**
Other multi-organ patients[3]	**20**	**21**	**5**
ALL PATIENTS	**7800**	**7636**	**-2**

Percentages not reported when fewer than 10 in either year
[1] Excludes bowel only patients see Table 9.1 in Chapter 9
[2] Two including kidney in 2011, three including kidney in 2012
[3] Includes patients waiting for kidney and liver transplants (19 in 2011, 18 in 2012), kidney and heart transplants (1 in 2011, 2 in 2012), liver and pancreas transplants (1 in 2012)

2.3 Transplants

There was a 6% increase in the total number of organ transplants (from deceased and living donors) last year: 3,960 transplants were performed in 2011-2012 compared with 3,741 in 2010-2011 (**Table 2.2**). All multi-organ transplants are identified separately as are transplants from living donors.

The total number of kidney transplants increased by 4% in 2011-2012; kidney transplants from donors after circulatory death increased by 18%, while the number of living donor kidney transplants fell by 1%. The total number of cardiothoracic organ transplants rose by 6%, the number of liver transplants rose by 12% and the number of pancreas transplants (including pancreas only, kidney/pancreas and pancreas islets) increased by 15%.

Table 2.2 Transplants performed in the UK, 1 April 2010 - 31 March 2012

Transplant	2010-2011	2011-2012	% Change
DBD kidney	960	960	-0
DCD kidney	542	639	+18
Living donor kidney	1021	1009	-1
DBD Kidney & pancreas	131	138	+5
DCD Kidney & pancreas	25	35	+40
DBD Pancreas	30	24	-20
DCD Pancreas	11	13	+18
Pancreas islets	13	30	+131
Deceased heart	131	138	+5
Domino heart	0	3	-
Heart/lung	3	5	-
DBD Single lung	23	27	+17
DCD Single lung	0	4	-
DBD Double lung	124	127	+2
DCD Double lung	22	17	-23
DBD liver	445	480	+8
DCD liver	99	130	+31
Domino liver	4	5	-
DBD liver lobe	119	109	-8
DCD liver lobe	1	2	-
Living donor liver lobe	21	38	+81
Kidney & liver	9	18	-
Liver & pancreas	7	7	-
Liver, kidney & pancreas	0	2	-
TOTAL ORGAN TRANSPLANTS	**3741**	**3960**	**+6**
Total kidney transplants[1]	**2688**	**2801**	**+4**
Total pancreas transplants[1]	**217**	**249**	**+15**
Total cardiothoracic transplants	**303**	**321**	**+6**
Total liver transplants[1]	**705**	**791**	**+12**

Percentage not reported when fewer than 10 in either year

[1] Includes intestinal transplants, 8 in 2010-2011 (5 including liver (1 liver only), 1 including kidney) and 10 in 2011-2012 (9 including liver (2 including kidney)), excludes bowel only transplants, see Table 9.2 in Chapter 9

Organ Donation Activity

Key messages

- There has been an 8% increase in deceased donors (to 1,088) and a 1% increase in living organ donors (to 1,055) compared with last year
- The number of donors after brain death increased by 2% to 652 and there was a 17% increase in donors after circulatory death to 436
- Donors after circulatory death provide, on average, one less organ for transplantation than donors after brain death
- Donor characteristics are continuing to change: donors are older, more obese, and less likely to have suffered a trauma-related death, all of which have adverse effects on transplant outcomes

3.1 Summary of activity

There was an 8% increase in the number of deceased organ donors in 2011-2012. This was a result of 2% more donors after brain death (DBD) and 17% more donors after circulatory death (DCD). The 1,088 deceased organ donors gave 3,726 organs compared with 1,010 donors and 3,495 organs in 2010-2011. This represents a 7% increase in organs donated. This is lower than the rate of increase in the number of donors because fewer organs can be used from donors after circulatory death, which is where the greatest increase was seen. In particular DCD donors cannot provide hearts for transplant. **Table 3.1** shows deceased organ donors according to the organs they donated.

Nearly all deceased donors (95%) gave a kidney and of these the majority (75%) also donated at least one other organ. Only 10% of donors after brain death were single organ donors, the majority of which were liver only donors. By contrast, 57% of donors after circulatory death were single organ donors, the majority (93%) of these donating just their kidneys.

Although the vast majority of living organ donors donated a kidney, there were three domino heart donors while a further 43 donated part of their liver. All living donations are approved by the Human Tissue Authority.

Table 3.1 Organ donors in the UK, 1 April 2011 - 31 March 2012, by organ types donated

	DBD	DCD	Living donor	**TOTAL**
Kidney only	27	233	1009	**1269**
Kidney & cardiothoracic	8	4	-	**12**
Kidney & liver	208	89	-	**297**
Kidney & pancreas	4	18	-	**22**
Kidney, cardiothoracic & liver	48	7	-	**55**
Kidney, cardiothoracic & pancreas	4	3	-	**7**
Kidney, liver & pancreas	145	57	-	**202**
Kidney, cardiothoracic, liver & pancreas	168	8	-	**176**
Cardiothoracic only	3	-	3	**6**
Cardiothoracic & liver	2	-	-	**2**
Cardiothoracic & pancreas	1	-	-	**1**
Cardiothoracic, liver & pancreas	1	-	-	**1**
Liver only	32	17	43	**92**
Pancreas only	1	-	-	**1**
TOTAL	**652**	**436**	**1055**	**2143**

3.2 Organ donors

Organ donor rates per million population (pmp) for 2011-2012 are given by country and Strategic Health Authority according to where the donor lived in **Table 3.2** while the number of deceased donors are shown based on the location of the hospital in which they died in **Table 3.3**. **Table 3.4** shows the number of deceased donors by Organ Donation Services team. **Appendix 1** shows a more detailed breakdown of the number of donors from the donating hospitals. Number and rates of utilised donors are given in Chapter 4.

Table 3.2 Organ donation rates per million population (pmp), in the UK, 1 April 2011 - 31 March 2012, by country/Strategic Health Authority of donor residence[1]

Country/Strategic Health Authority of residence	DBD		DCD		TOTAL		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East	41	(15.7)	28	(10.7)	69	(26.4)	51	(19.5)
North West	63	(9.1)	47	(6.8)	110	(15.9)	108	(15.6)
Yorkshire and The Humber	48	(9.1)	30	(5.7)	78	(14.7)	68	(12.8)
North of England	**152**	**(10.2)**	**105**	**(7.1)**	**257**	**(17.3)**	**227**	**(15.3)**
East Midlands	32	(7.1)	29	(6.5)	61	(13.6)	66	(14.7)
West Midlands	50	(9.2)	37	(6.8)	87	(15.9)	86	(15.8)
East of England	68	(11.7)	52	(8.9)	120	(20.6)	94	(16.1)
Midlands and East	**150**	**(9.5)**	**118**	**(7.5)**	**268**	**(17.0)**	**246**	**(15.6)**
London	**75**	**(9.6)**	**32**	**(4.1)**	**107**	**(13.7)**	**215**	**(27.5)**
South East Coast	54	(12.3)	23	(5.2)	77	(17.5)	69	(15.7)
South Central	47	(11.4)	19	(4.6)	66	(15.9)	61	(14.7)
South West	43	(8.2)	69	(13.1)	112	(21.3)	59	(11.2)
South of England	**144**	**(10.4)**	**111**	**(8.0)**	**255**	**(18.5)**	**189**	**(13.7)**
England	**521**	**(10.0)**	**366**	**(7.0)**	**887**	**(17.0)**	**877**	**(16.8)**
Isle of Man	**3**	**(37.5)**	**0**	**(0.0)**	**3**	**(37.5)**	**2**	**(25.0)**
Channel Islands	**2**	**(13.3)**	**1**	**(6.7)**	**3**	**(20.0)**	**6**	**(40.0)**
Wales	**37**	**(12.3)**	**38**	**(12.6)**	**75**	**(24.9)**	**54**	**(17.9)**
Scotland	**53**	**(10.2)**	**28**	**(5.4)**	**81**	**(15.5)**	**59**	**(11.3)**
Northern Ireland	**36**	**(20.0)**	**3**	**(1.7)**	**39**	**(21.7)**	**57**	**(31.7)**
TOTAL	**652**	**(10.4)**	**436**	**(7.0)**	**1088**	**(17.4)**	**1055**	**(16.9)**

[1] Includes 88 donors (35 deceased, 53 living) where the hospital postcode was used in place of an unknown donor postcode

Table 3.2 shows variation in the number of DBD and DCD donors pmp across the UK. There were 10.4 DBD donors pmp for the UK as a whole, but across the English Strategic Health Authorities (SHA) this ranged between 7.1 and 15.7 pmp. However, the number of potential donors pmp also varies and further information can be seen in Chapter 13. It should be noted that these figures are not directly comparable, however, because certain categories of patients are excluded from the Potential Donor Audit. For DCD donors the UK rate is 7.0 pmp, ranging from 1.7 to 12.6 pmp across countries of the UK and from 4.6 to 13.1 pmp in the English SHAs. No adjustment has been made for any differences in demographics of the populations across centres or SHAs.

Table 3.3 Deceased organ donors in the UK, 1 April 2011 - 31 March 2012, by country/Strategic Health Authority of hospital of donor death

Country of donation/ Strategic Health Authority	DBD N	DCD N	**TOTAL** N
North East	42	32	74
North West	71	52	123
Yorkshire and The Humber	45	29	74
North of England	**158**	**113**	**271**
East Midlands	32	19	51
West Midlands	51	40	91
East of England	60	44	104
Midlands and East	**143**	**103**	**246**
London	**113**	**49**	**162**
South East Coast	34	20	54
South Central	44	18	62
South West	35	66	101
South of England	**113**	**104**	**217**
England	**527**	**369**	**896**
Isle of Man	**2**	**0**	**2**
Channel Islands	**2**	**1**	**3**
Wales	**32**	**35**	**67**
Scotland	**53**	**28**	**81**
Northern Ireland	**36**	**3**	**39**
TOTAL	**652**	**436**	**1088**

Table 3.4	Deceased organ donors in the UK, 1 April 2011 - 31 March 2012, by Organ Donation Services Team		
Team	DBD N	DCD N	**TOTAL** N
Eastern	63	47	110
London	106	49	155
Midlands	70	50	120
North West	77	53	130
Northern	43	36	79
Northern Ireland	36	3	39
Scotland	53	28	81
South Central	48	29	77
South East	43	21	64
South Wales	29	32	61
South West	33	56	89
Yorkshire	51	32	83
TOTAL	**652**	**436**	**1088**

The mean number of organs retrieved per donor in 2011-2012 is given by country in **Table 3.5**. Overall for adult donors, an average of 4.0 organs were donated per DBD donor and 2.6 per DCD donor. For adult DBD donors, the rate ranged from 3.7 organs per donor in Scotland to 4.1 in Wales.

Table 3.5	Organs retrieved per donor, in the UK, 1 April 2011 - 31 March 2012, by country of donor residence					
Country	Adult			Paediatric		
	DBD	DCD	**TOTAL**	DBD	DCD	**TOTAL**
England	4.0	2.6	**3.4**	4.3	2.8	**3.8**
Wales	4.1	2.5	**3.3**	-	-	**-**
Scotland	3.7	2.5	**3.3**	4.8	4.0	**4.7**
Northern Ireland	3.9	3.7	**3.9**	-	-	**-**
TOTAL	**4.0**	**2.6**	3.4	**4.4**	**2.9**	3.9

3.3 Demographic characteristics

While the number of donors overall is increasing, it is important to be aware that there have been changes over time with regard to donor characteristics (**Table 3.6**). In 2011-2012, 34% of deceased donors were aged 60 years or more compared with 16% in 2002-2003 (**Figure 3.1**). In particular the proportion of these donors aged at least 70 years has increased from 3% to 11% over the same time period. The trend is similar for both DBD and DCD donors. The proportion of clinically obese donors (Body Mass Index (BMI) of 30 or higher) has increased from 14% to 23% in deceased donors in the last 10 years (**Figure 3.2**) and the trend is similar for both DBD and DCD donors. In addition, the proportion of all deceased donors after a trauma death has decreased from 18% to 6% over the same time period. All of these changes may have an adverse impact on the quality of the organs and the subsequent transplant outcome for the recipient.

Table 3.6 also indicates the ethnicity of deceased organ donors, highlighting that 4% of donors are from ethnic minority groups. By contrast, ethnic minority groups represent 8% of the UK population.

Table 3.6 Demographic characteristics of organ donors in the UK 1 April 2011 - 31 March 2012

		DBD		DCD		**TOTAL**	
		N	(%)	N	(%)	**N**	**(%)**
Age	0-17	30	(5)	13	(3)	**43**	**(4)**
	18-49	274	(42)	137	(31)	**411**	**(38)**
	50-59	167	(26)	100	(23)	**267**	**(25)**
	60-69	127	(19)	123	(28)	**250**	**(23)**
	70+	54	(8)	63	(14)	**117**	**(11)**
	Mean (SD)	48	(17)	53	(17)	**50**	**(17)**
BMI	0-19	35	(5)	34	(8)	**69**	**(6)**
	20-29	464	(71)	301	(69)	**765**	**(70)**
	30+	151	(23)	97	(22)	**248**	**(23)**
	Unknown	2	(0)	4	(1)	**6**	**(1)**
	Mean (SD)	27	(6)	26	(6)	**27**	**(6)**
Cause of death	Intracranial	572	(88)	342	(78)	**914**	**(84)**
	Trauma	39	(6)	27	(6)	**66**	**(6)**
	Other	41	(6)	67	(15)	**108**	**(10)**
Ethnicity	White	617	(95)	425	(97)	**1042**	**(96)**
	Asian	11	(2)	5	(1)	**16**	**(1)**
	Black	10	(2)	2	(0)	**12**	**(1)**
	Other	14	(2)	4	(1)	**18**	**(2)**
Blood group	O	302	(46)	199	(46)	**501**	**(46)**
	A	259	(40)	186	(43)	**445**	**(41)**
	B	59	(9)	43	(10)	**102**	**(9)**
	AB	32	(5)	8	(2)	**40**	**(4)**
TOTAL		**652**	**(100)**	**436**	**(100)**	1088	(100)

Figure 3.1 Age of deceased donors in the UK, 1 April 2002 - 31 March 2012

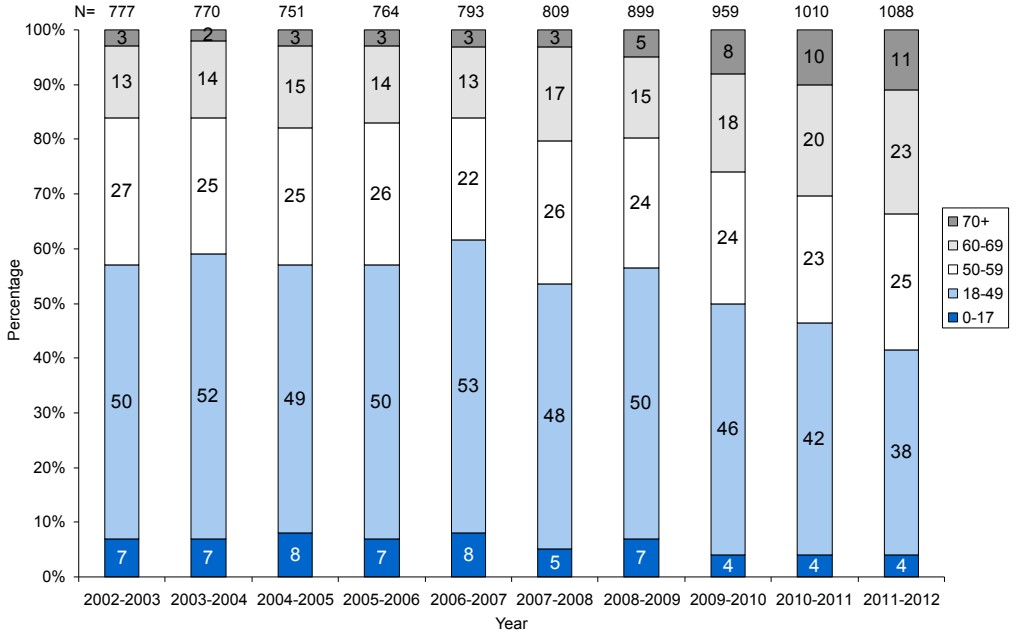
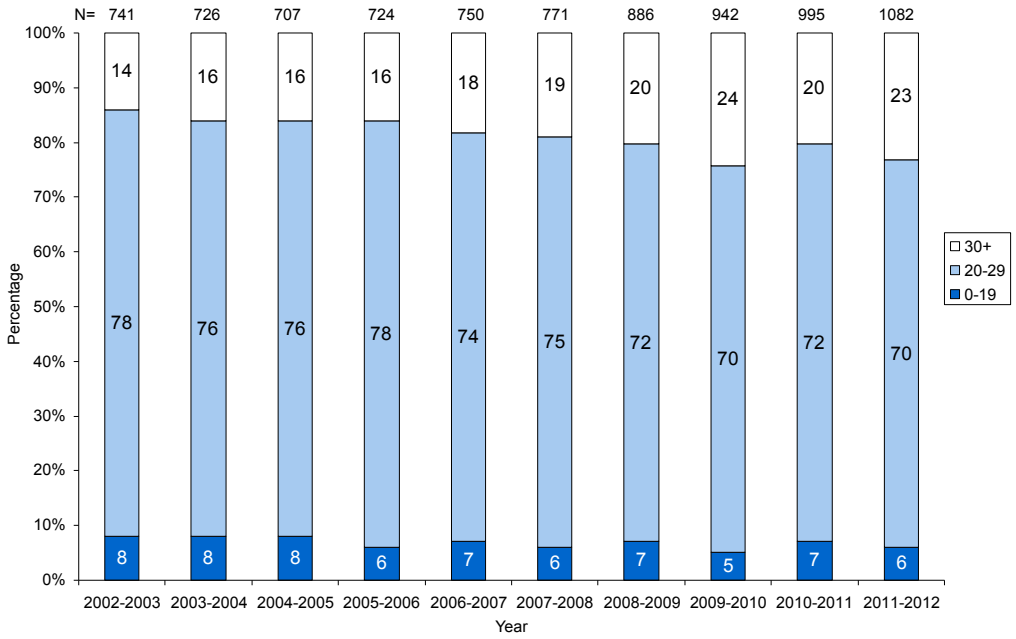


Figure 3.2 BMI of deceased donors in the UK, 1 April 2002 - 31 March 2012



Note that BMI cannot be determined for all deceased donors thus numbers indicated in Figure 3.2 are the numbers of donors for which BMI was available, not total numbers of donors.

The National Organ Retrieval Service and Usage of Organs

Key messages

- **National Organ Retrieval Service teams attended 667 DBD donors and 754 DCD donors; 2% of DBD donors and 42% of DCD donors attended did not proceed to donation**
- **85% of deceased donor kidneys offered to transplant centres are subsequently transplanted, compared with 66% of livers, 40% of pancreases, 29% of hearts and 23% of lungs; the remaining organs are not transplanted due to lack suitability of the donor or organ for any patient on the transplant list**
- **The UK actual donor rate is 17.4 pmp, while the utilized donor rate is 16.4 pmp as 6% of organ donors result in no organs being transplanted**

4.1 The National Organ Retrieval Service (NORS)

A National Organ Retrieval Service (NORS) was introduced in the UK on 1 April 2010. The service comprises seven abdominal organ retrieval teams and six cardiothoracic organ retrieval teams. These teams are based in liver and cardiothoracic transplant centres, respectively.

Each of the thirteen teams is on call 24 hours per day, seven days per week. If a team is the first on-call for a particular donor hospital, they are required to attend within an agreed timescale if at least one organ has been accepted for transplant when offered to the transplant centres in the UK. Each team has a designated area for which they are first on-call, based on the premise that the travel time to any hospital in their area should be less than three hours. There are some exceptions to this principle for remote hospitals. If a team is already retrieving when they are called to attend a donor, then a second team will be called in to retrieve, and so on.

The number of donors after brain death and donors after circulatory death that were attended by each of the teams is shown in **Table 4.1**. The table also shows the number of proceeding (actual) organ donors and the number that did not proceed to donation. Many of the potential donors after circulatory death prove unsuitable for organ donation due to a prolonged time to death in which time the organs deteriorate. The number of donors attended per team varies according to the number of potential donors identified in each of the areas, as the areas are not of equal size.

A small number of donors are attended by local kidney transplant teams. This is typically for donors after circulatory death when only the donor's kidneys have been accepted for transplant. There is no expectation that local kidney teams retrieve organs, but they are appropriately reimbursed if they are willing and able to do so.

Table 4.1 Number of actual and non-proceeding donors per retrieval team

	Donors after brain death				Donors after circulatory death			
Retrieval team	Actual	Non-proceeding	% non-proc	No. attended	Actual	Non-proceeding	% non-proc	No. attended
Abdominal								
Birmingham/Cardiff	99	3	3	102	110	79	42	189
Cambridge	90	0	0	90	62	36	37	98
King's	115	1	1	116	63	51	45	114
Leeds/Manchester	107	4	4	111	68	65	49	133
Newcastle	79	3	4	82	45	31	41	76
Royal Free/Oxford	105	3	3	108	55	37	40	92
Scotland	54	1	2	55	29	15	34	44
Abdominal total	**649**	**15**	**2**	**664**	**432**	**314**	**42**	**746**
Cardiothoracic								
Birmingham	41	19	32	60	0	0	-	0
Harefield	32	22	41	54	9	34	79	43
Manchester	48	13	21	61	4	8	67	12
Newcastle	37	9	20	46	5	15	75	20
Papworth	55	20	27	75	4	4	50	8
Scotland	11	33	75	44	0	0	-	0
Cardiothoracic total	**224**	**116**	**34**	**340**	**22**	**61**	**73**	**83**
Total donors (abdominal and/or cardiothoracic)	**652**	**15**	**2**	**-**	**436**	**318**	**42**	**-**

Note: there were 15 actual donors attended by a local team. Plymouth, Nottingham, Liverpool and St George's each attended one of the local abdominal donors. Of the cardiothoracic donors, two were attended by Great Ormond Street Hospital and 9 were attended by an overseas retrieval team.

4.2 Retrieval and usage of organs

There were 1088 actual deceased organ donors last year, but not all organs from these donors were offered for transplantation. **Table 4.2** shows the number of organs offered, retrieved and transplanted from the 652 DBD and 436 DCD donors. The number of organs from these donors that were subsequently used for research purposes is also shown. The number of organs offered for transplant excludes those where the donor did not meet the nationally agreed age criteria for suitability for donation of that specific organ. There are no age cut-offs agreed for kidney and liver donation.

Each year, a number of actual organ donors result in no transplants. Donors resulting in at least one transplant are termed 'utilised' donors and the number of actual and utilised donors for the UK as a whole is shown in **Table 4.3**. The number of donors per million of population is also shown. Last year 6% of actual donors resulted in no organ transplants.

Figures 4.1 and **4.2** show offering, retrieval and transplantation of organs, in terms of percentages. Charts start at 100% for each organ, representing all organs from the 652 DBD and 436 DCD donors. The charts indicate the proportion of those organs following the pathway through each step to transplantation eg meeting national donor age criteria, having consent, being offered out to transplant centres, being retrieved for transplant and resulting in transplantation. For example, **Figure 4.1** shows that 30% of the pancreases from the 652 DBD donors were transplanted, but that 41% of pancreases from donors within the nationally agreed age limit of 60 years were transplanted. Transplant rates of kidneys and livers are generally high, while other organs, even allowing for the agreed age limits, are less often transplanted.

Reasons for organs not being offered for transplant, being offered but not accepted and retrieved and for being retrieved but not subsequently transplanted are shown in **Table 4.4** for abdominal organs from DBD donors, **Table 4.5** for abdominal organs from DCD donors and in **Table 4.6** for cardiothoracic organs. Reasons for the medical unsuitability of a donor include infections, tumours, anatomy and disease. Non-medical reasons include donor size. Clinical unsuitability of an organ encompasses poor perfusion, prolonged ischaemia time, past history of donor and, in the case of pancreases for islets, insufficiency of viable islet yield. Reasons reported under ‘other’ include logistical and recipient related issues in addition to un-coded reasons reported of a miscellaneous nature.

These tables also indicate the number of organs from UK donors that were transplanted overseas. These organs were not accepted for transplant by any UK transplant centre, but were accepted for suitable recipients identified elsewhere, usually in Europe. Other than livers fulfilling an arrangement for the transplantation of super-urgent patients in the Republic of Ireland, only hearts and lungs were exported for transplant outside the UK. Organs from outside the UK are occasionally imported for transplant. In 2011/12 these were 11 hearts (including 4 from ROI), 1 lung from ROI and 14 livers (including 10 from ROI).

Table 4.2 Donation and transplantation of organs from 1088 deceased donors in the UK, 1 April 2011 – 31 March 2012

Organ	Organs meeting initial suitability criteria and offered for transplant	Organs retrieved for transplant		Organs transplanted			Organs used for research (from actual organ donors)[4]
		N	% of offered	N	% of retrieved	% of offered	
DBD organ donors							
Kidney	1298	1209	93	1127	93	87	25
Liver	641	604	94	557	92	87	27
Pancreas[1]	419	314	75	195	62	47	41
Heart[2]	476	136	29	136	100	29	0
Lung[3]	994	322	32	308	96	31	3
DCD organ donors							
Kidney	872	823	94	712	87	82	38
Liver	405	178	44	132	74	33	38
Pancreas[1]	203	86	42	51	59	25	12
Lung[3]	536	42	8	38	90	7	0
Deceased organ donors							
Kidney	2170	2032	94	1839	91	85	63
Liver	1046	782	75	689	88	66	65
Pancreas[1]	622	400	64	246	62	40	53
Heart[2]	476	136	29	136	100	29	0
Lung[3]	1530	364	24	346	95	23	3

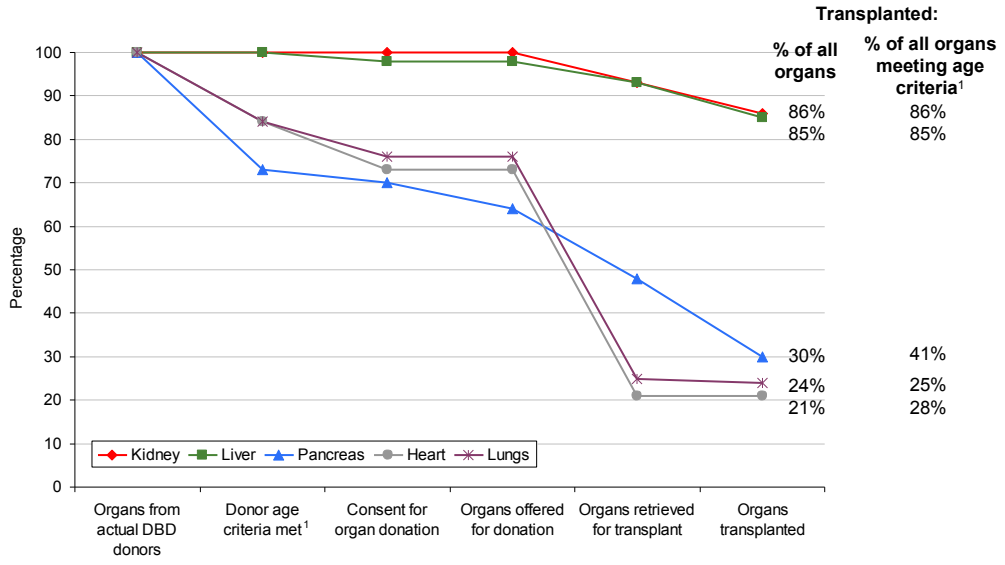
[1] Excludes donors aged > 60 years
[2] Excludes donors aged > 65 years or died due to myocardial infarction
[3] Excludes donors aged > 65 years
[4] Includes one DBD and one DCD pancreas retrieved only for research

Table 4.3 Actual and utilised deceased donors in the UK, 1 April 2011 – 31 March 2012

	DBD (pmp)		DCD (pmp)		Total (pmp)	
Actual donors	652	(10.4)	436	(7.0)	1088	(17.4)
Utilised donors[1]	639	(10.2)	387	(6.2)	1026	(16.4)

[1] Utilised donors defined as donors where one or more organs were retrieved and transplanted

Figure 4.1 Donation and transplantation rates of organs from DBD organ donors in the UK, 1 April 2011 – 31 March 2012



[1] Hearts – in addition to age criteria, donors who died due to myocardial infarction are excluded

Figure 4.2 Donation and transplantation rates of organs from DCD organ donors in the UK, 1 April 2011 – 31 March 2012

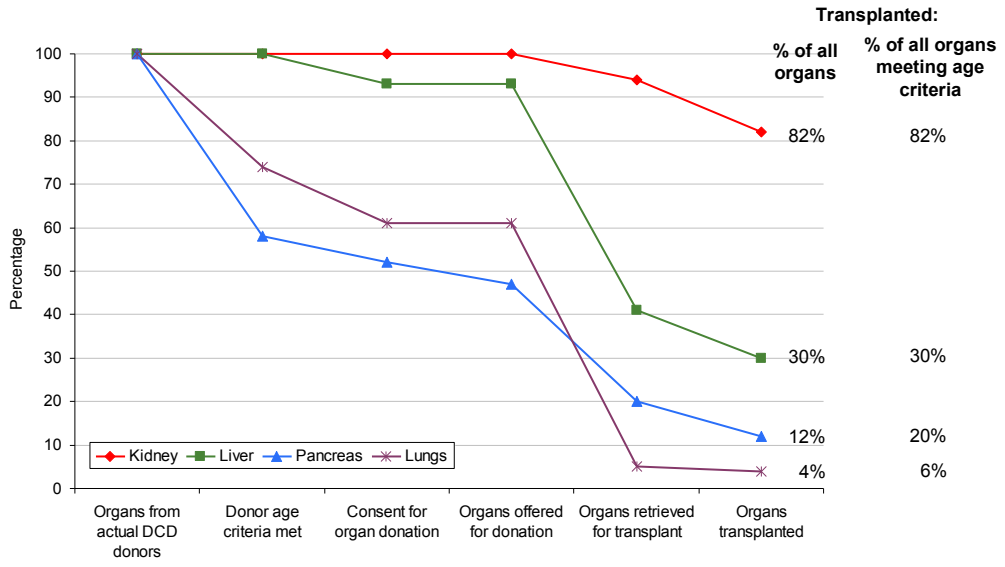


Table 4.4 Reasons for non-retrieval and non-use of abdominal organs from organ donors after brain death (DBD) in the UK, 1 April 2011 – 31 March 2012

	Kidney	Liver	Pancreas
All DBD organ donors	**652**	**652**	**652**
Donors from whom organs not offered for donation	3	11	23
Reasons for organs not being offered			
Family permission refused	3	10	21
Permission refused by coroner	0	1	1
Donor unsuitable – age	0	0	173[1]
Donor unsuitable – past history	0	0	18
Other	0	0	20
TOTAL DONORS WITH ORGANS NOT OFFERED	**3**	**11**	**233**
Organs offered for donation	**1298**	**641**	**419**
Organs not retrieved (% of organs offered for donation)	89 (7)	37 (6)	105 (25)
Reasons for non-retrieval			
Donor			
Donor unsuitable – medical	19	3	12
Donor unsuitable – non-medical	3	0	17
Donor age	6	0	5
Organ			
Organ unsuitable – clinical	45	21	48
Poor function	12	4	9
Other			
Other	4	9	14
TOTAL ORGANS NOT RETRIEVED	**89**	**37**	**105**
Organs retrieved (% of organs offered for donation)	1209 (93)	604 (94)	314 (75)
Organs transplanted in the UK	1127	552	195
Organs transplanted overseas	0	5[2]	0
Organs not transplanted	82	47	119
Reasons for organ not being transplanted			
Donor			
Donor unsuitable – medical	34	5	9
Donor unsuitable – non-medical	0	3	2
Donor age	0	0	0
Organ			
Organ unsuitable – clinical	29	36	91
Poor function	0	0	2
Other			
Other	19	3	15
TOTAL ORGANS NOT TRANSPLANTED (Number used for research)	**82 (25)**	**47 (27)**	**119 (40)**

[1] One pancreas not offered for donation due to donor age was retrieved and used for research
[2] Transplanted into super-urgent patients in the Republic of Ireland

Table 4.5 Reasons for non-retrieval and non-use of abdominal organs from organ donors after circulatory death (DCD) in the UK, 1 April 2011 – 31 March 2012

	Kidney	Liver	Pancreas
All DCD organ donors	**436**	**436**	**436**
Donors from whom organs not offered for donation	0	31	233
Reasons for organs not being offered			
Family permission refused	0	26	23
Permission refused by coroner	0	5	2
Donor unsuitable – age	0	0	185[1]
Donor unsuitable – past history	0	0	12
Other	0	0	11
TOTAL DONORS WITH ORGANS NOT OFFERED	**0**	**31**	**233**
Organs offered for donation	**872**	**405**	**203**
Organs not retrieved (% of organs offered for donation)	49 (6)	227 (56)	117 (58)
Reasons for non-retrieval			
Donor			
Donor unsuitable – medical	8	7	3
Donor unsuitable – non-medical	0	9	14
Donor age	6	55	19
Organ			
Organ unsuitable – clinical	14	90	47
Poor function	5	24	3
Other			
Other	16	42	31
TOTAL ORGANS NOT RETRIEVED	**49**	**227**	**117**
Organs retrieved (% of organs offered for donation)	823 (94)	178 (44)	86 (42)
Organs transplanted in the UK	712	132	51
Organs transplanted overseas	0	0	0
Organs not transplanted	111	46	35
Reasons for organ not being transplanted			
Donor			
Donor unsuitable – medical	29	6	3
Donor unsuitable – non-medical	0	1	1
Donor age	0	0	0
Organ			
Organ unsuitable – clinical	38	27	22
Poor function	3	0	1
Other			
Other	41	12	8
TOTAL ORGANS NOT TRANSPLANTED (Number used for research)	**111 (38)**	**46 (38)**	**35 (11)**

[1] One pancreas not offered for donation due to donor age was retrieved and used for research

Table 4.6 Reasons for non-retrieval and non-use of cardiothoracic organs from organ donors in the UK, 1 April 2011 – 31 March 2012

	Heart (DBD)	Lung (DBD)	Lung (DCD)
All organ donors	**652**	**652**	**436**
Donors from whom organs not offered for donation	176	155	168
Reasons for organs not being offered			
Family permission refused	55	39	47
Permission refused by coroner	17	13	8
Donor age >65 years	103	103	113
Donor COD of cardiac arrest or MI	1	0	0
TOTAL DONORS WITH ORGANS NOT OFFERED	**176**	**155**	**168**
Organs offered for donation	**476**	**994**	**536**
Organs not retrieved (% of organs offered for donation)	340 (71)	672 (68)	494 (92)
Reasons for non-retrieval			
Donor			
Donor unsuitable – medical	23	43	25
Donor unsuitable – non-medical	44	49	112
Donor age	24	30	54
Organ			
Organ unsuitable – clinical	76	152	108
Poor function	126	314	139
Other			
Other	47	84	56
TOTAL ORGANS NOT RETRIEVED	**340**	**672**	**494**
Organs retrieved (% of organs offered for donation)	136 (29)	322 (32)	42 (8)
Organs transplanted in the UK	132	288	38
Organs transplanted overseas	4	20	0
Organs not transplanted	0	14	4
Reasons for organ not being transplanted			
Donor			
Donor unsuitable – medical	0	1	0
Donor unsuitable – non-medical	0	0	0
Organ			
Organ unsuitable – clinical	0	0	0
Poor function	0	2	2
Other			
Other	0	11	2
TOTAL ORGANS NOT TRANSPLANTED (Number used for research)	**0 (0)**	**14 (3)**	**4 (0)**

Kidney Activity

Key messages

- **The number of deceased kidney donors increased by 8% to 1,031**
- **Kidney transplants from living donors decreased by 1% to 1,009, while transplants from deceased donors increased by 7% to 1,792**
- **51 kidney transplants were made possible by the paired living kidney donation programme**
- **Non-directed living kidney donation resulted in 35 living donor kidney transplants**
- **The number of patients registered on the kidney transplant list this year fell by 3% from 6,871 to 6,633**

5.1 Overview

The number of deceased kidney donors increased by 8% in 2011-2012 compared to 2010-2011 and the number of deceased donor kidney transplants increased by 7%. These increases are very welcome for the 6,633 patients waiting for a kidney transplant and for the third year running the number of patients on the national list for a kidney transplant has declined. This is unlikely to reflect a true decline in demand for transplantation, however, since if there was an unlimited supply of organs for transplant, many more patients with kidney failure could receive a transplant than is currently the case.

A summary of activity for deceased donor kidney transplants and the transplant list at year end for the last ten years is shown in **Figure 5.1**. Despite the slight drop in the last three years, the number of patients registered on the active transplant list at 31 March 2012 for a kidney or kidney and pancreas transplant has risen by 32% since 2003.

Figure 5.1 Deceased donor kidney programme in the UK, 1 April 2002 - 31 March 2012
Number of donors, transplants and patients on the active transplant list at 31 March

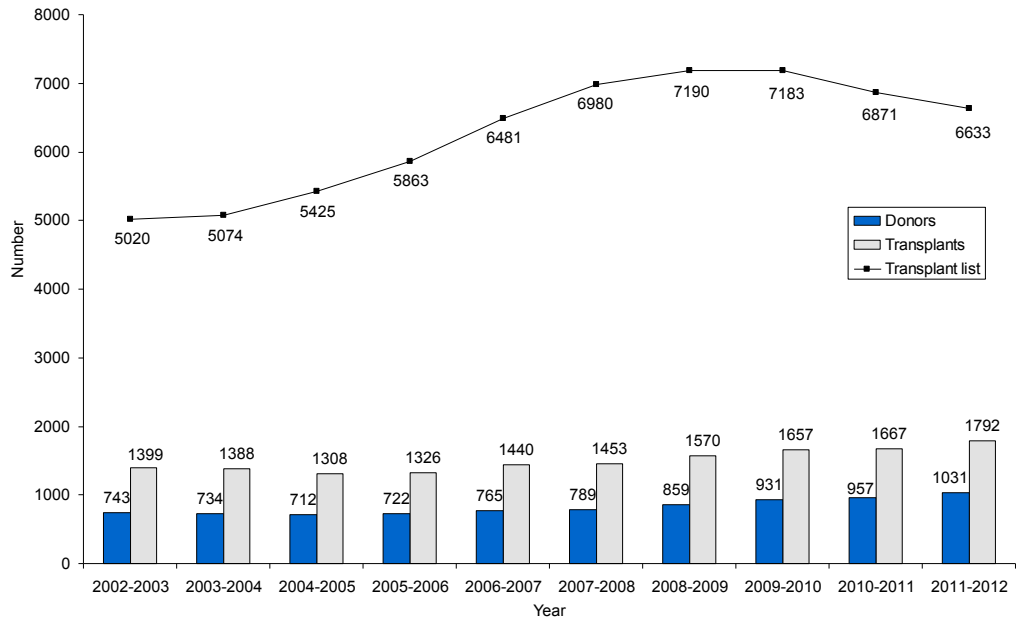


Table 5.1 shows the number of deceased and living donor kidney transplants carried out in 2011-2012 at each centre. Kidney transplants from donors after circulatory death are increasingly common and in this financial year only two adult kidney transplant centres did not perform any such transplants. As yet, very few kidneys from donors after circulatory death are transplanted in paediatric patients (<18 years). Donation figures for centres in North and South Thames are not reported individually as they have shared designated areas and donor populations. Multi-organ transplants including a kidney are included in the table.

The total number of deceased kidney donors rose to 1,031 in 2011-2012 from 957 in 2010-2011 and the number of transplants increased from 1,667 to 1,792. The number of kidney donors after circulatory death increased to 419 from 355 in 2010-2011 and the number of transplants from such donors increased by 19% to 674.

Table 5.1 Kidney donors and transplants, 1 April 2011 - 31 March 2012 (2010-2011) and transplant list at 31 March 2012 (2011) in the UK, by centre

Centre	Deceased kidney donors				Deceased donor transplants				Living donor transplants		Active transplant list	
	DBD		DCD		DBD		DCD					
Belfast	35	(36)	3	(2)	27	(26)	0	(0)	52	(46)	179	(176)
Birmingham	40	(47)	32	(24)	69	(69)	16	(9)	57	(55)	622	(670)
Bristol	19	(18)	29	(26)	27	(45)	32	(36)	42	(44)	367	(324)
Cambridge	40	(32)	40	(35)	47	(53)	76	(74)	47	(45)	223	(242)
Cardiff	25	(30)	27	(22)	41	(50)	67	(40)	39	(39)	184	(198)
Coventry	9	(5)	6	(10)	22	(19)	6	(10)	35	(34)	119	(130)
Edinburgh	37	(34)	16	(11)	59	(52)	21	(16)	24	(28)	188	(245)
Glasgow	13	(15)	12	(7)	59	(53)	24	(11)	31	(25)	314	(308)
Great Ormond Street	0	(0)	0	(0)	8	(10)	1	(1)	21	(9)	15	(16)
Leeds	33	(27)	21	(21)	75	(50)	53	(51)	46	(38)	317	(336)
Leicester	18	(14)	6	(3)	53	(38)	0	(2)	36	(54)	345	(379)
Liverpool	34	(29)	20	(23)	37	(33)	36	(35)	28	(26)	190	(227)
Manchester	36	(37)	32	(19)	107	(104)	47	(19)	77	(78)	593	(602)
Newcastle	42	(33)	34	(26)	23	(35)	49	(49)	59	(53)	222	(218)
North Thames[1]	85	(82)	31	(34)	-	-	-	-	-	-	-	-
Royal Free	-	-	-	-	42	(26)	26	(25)	43	(38)	275	(267)
Royal London	-	-	-	-	35	(48)	28	(18)	41	(46)	225	(243)
WLRTC	-	-	-	-	65	(75)	5	(18)	56	(70)	525	(465)
Nottingham	11	(13)	11	(10)	46	(67)	35	(20)	13	(26)	187	(215)
Oxford	29	(39)	14	(10)	97	(90)	40	(53)	50	(48)	308	(376)
Plymouth	11	(12)	29	(19)	9	(2)	46	(23)	12	(12)	79	(102)
Portsmouth	20	(12)	12	(11)	36	(22)	12	(17)	17	(18)	231	(209)
Sheffield	11	(17)	9	(13)	23	(36)	16	(12)	20	(19)	198	(195)
South Thames[1]	64	(70)	35	(29)	-	-	-	-	-	-	-	-
Guy's	-	-	-	-	79	(70)	25	(18)	113	(117)	420	(431)
St George's	-	-	-	-	32	(27)	13	(10)	50	(53)	307	(297)
TOTAL	**612**	**(602)**	**419**	**(355)**	**1118**	**(1100)**	**674**	**(567)**	**1009[2]**	**(1021)**	**6633**	**(6871)**

WLRTC – West London Renal and Transplant Centre

[1] Donor figures in this area cannot be linked to individual transplant centres due to shared donation areas.

[2] Includes 2 domino donor transplants

5.2 Transplant list

The number of patients registered on the kidney or kidney and pancreas transplant list fell by 3% in the year: on 31 March 2012, 6,633 patients were registered as active, compared with 6,871 at the end of March 2011. The number of patients waiting for a kidney transplant represents 106 patients per million population (pmp).

Of the 6,633 patients on the active transplant list at 31 March 2012, 193 required a kidney and pancreas transplant (250 at 31 March 2011). Additionally, 60 patients were registered for a pancreas only transplant (72 at 31 March 2011).

The outcome of patients registered on the UK kidney and kidney/pancreas transplant list at 1 April 2011, or subsequently registered during the financial year, is shown in **Table 5.2**. A total of 3,160 patients joined the kidney transplant list last year, while a further 189 joined the kidney/pancreas transplant list.

Table 5.2 Kidney transplant list and new registrations in the UK, 1 April 2011 - 31 March 2012

Outcome of patient at 31 March 2012	Active and suspended patients at 1 April 2011		New registrations in 2011-2012[1]		**TOTAL**	
	N	**%**	**N**	**%**	**N**	**%**
Kidney transplant list						
Remained active/suspended	6445	70	2625	83	**9070**	**73**
Transplanted	1973	21	468	15	**2441**	**20**
Removed	490[2]	5	42[3]	1	**532**	**4**
Died	278	3	25	1	**303**	**2**
TOTAL	**9186**		**3160**		**12346**	
Kidney/pancreas transplant list						
Remained active/suspended	183	49	155	82	**338**	**60**
Transplanted	158	42	32	17	**190**	**34**
Removed	17	5	1	1	**18**	**3**
Died	15	4	1	1	**16**	**3**
TOTAL	**373**		**189**		**562**	

[1] Includes re-registrations for second or subsequent transplants
[2] Includes 12 patients removed from kidney list and made active on kidney/pancreas list
[3] Includes 5 patients removed from kidney list and made active on kidney/pancreas list

An indication of outcomes for patients listed for a kidney transplant is summarised in **Figure 5.2**. This shows the proportion of patients transplanted or still waiting one, three and five years after joining the list. It also shows the proportion removed from the transplant list (typically because they become too unwell for transplant) and those dying while on the transplant list. Only 21% of patients are transplanted within one year, while five years after listing 65% of patients have received a transplant.

The median (average) waiting time for a kidney only transplant is 1168 days for an adult patient and is shown by patient blood group in **Table 5.3** and patient ethnicity in **Table 5.4**. Because of the need to match donor and recipient blood groups and tissue types, waiting times to transplant differ according to patient blood groups and ethnicity due to differences between the donor pool and patients awaiting a kidney transplant. Note that these waiting times are not adjusted for other relevant factors which may be influential and which may differ across blood or ethnic groups.

Figure 5.2 **Post-registration outcome for 3055 new adult kidney only registrations made in the UK, 1 April 2006 - 31 March 2007**

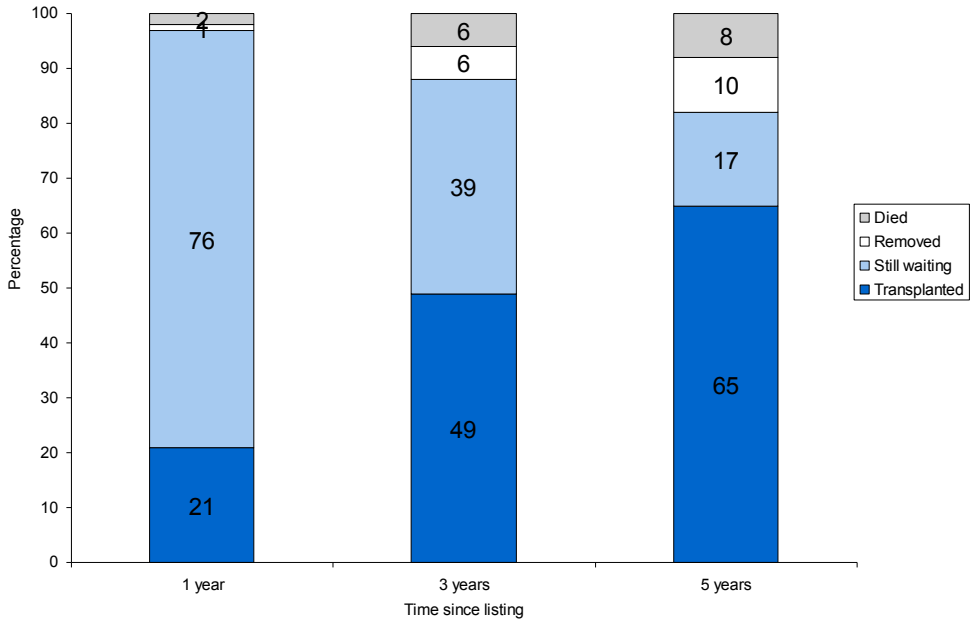


Table 5.3 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2005 - 31 March 2009

Blood group	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
O	4036	1395	1357 - 1433
A	3356	955	924 - 986
B	1233	1330	1253 - 1407
AB	366	610	529 - 691
TOTAL	**8991**	**1168**	**1143 - 1193**
Paediatric			
O	157	384	286 - 482
A	110	295	181 - 409
B	44	277	85 - 469
AB	14	504	0 - 1192
TOTAL	**325**	**354**	**283 - 425**

Table 5.4 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2005 - 31 March 2009

Ethnicity	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
White	6927	1108	1081 - 1135
Asian	1185	1431	1348 - 1514
Black	649	1388	1294 - 1482
Other	230	1231	1043 - 1419
TOTAL	**8991**	**1168**	**1143 - 1193**
Paediatric			
White	231	243	188 - 298
Asian	67	563	395 - 731
Black	19	623	271 - 975
Other	8	-	-
TOTAL	**325**	**354**	**283 - 425**

Median waiting time not reported for fewer than 10 patients

5.3 Donor and organ supply

Of the 652 organ donors after brain death in the UK in 2011-2012, 612 (94%) were kidney donors. From these donors, 1,209 kidneys were retrieved. There were 419 kidney donors after circulatory death in 2011-2012. From these donors, 823 kidneys were retrieved. **Table 5.5** shows this activity by donor country/Strategic Health Authority of donor's residence. No adjustments have been made for potential demographic differences in populations.

The overall rate for kidney donors after brain death is 9.8 pmp, with rates across the Strategic Health Authorities ranging from 7.1 to 15.3 pmp. The number of kidneys retrieved from donors after brain death in the UK is 19.3 pmp and varies from 14.1 to 29.9 pmp.

The overall rate for kidney donors after circulatory death is 6.7 pmp, with rates across the strategic health authorities ranging from 3.6 to 12.7 pmp. The number of kidneys retrieved from donors after circulatory death is 13.2 pmp and varies from 6.8 to 25.2 pmp.

Table 5.5 Kidney donation and retrieval rates for deceased donors in the UK, 1 April 2011 - 31 March 2012, by country/Strategic Health Authority[1]

Country/Strategic Health Authority of residence	Kidney donors (pmp)				Kidneys retrieved (pmp)			
	DBD		DCD		DBD		DCD	
North East	40	(15.3)	27	(10.3)	78	(29.9)	53	(20.3)
North West	57	(8.2)	46	(6.6)	114	(16.4)	92	(13.3)
Yorkshire and The Humber	45	(8.5)	30	(5.7)	89	(16.8)	60	(11.3)
North of England	**142**	**(9.6)**	**103**	**(6.9)**	**281**	**(18.9)**	**205**	**(13.8)**
East Midlands	32	(7.1)	28	(6.3)	63	(14.1)	56	(12.5)
West Midlands	46	(8.4)	35	(6.4)	90	(16.5)	69	(12.6)
East of England	63	(10.8)	52	(8.9)	125	(21.4)	103	(17.7)
Midlands and East	**141**	**(8.9)**	**115**	**(7.3)**	**278**	**(17.6)**	**228**	**(14.5)**
London	**68**	**(8.7)**	**28**	**(3.6)**	**135**	**(17.2)**	**53**	**(6.8)**
South East Coast	50	(11.4)	20	(4.6)	97	(22.1)	40	(9.1)
South Central	46	(11.1)	19	(4.6)	90	(21.7)	37	(8.9)
South West	41	(7.8)	67	(12.7)	82	(15.6)	133	(25.2)
South of England	**137**	**(9.9)**	**106**	**(7.7)**	**269**	**(19.5)**	**210**	**(15.2)**
England	**488**	**(9.3)**	**352**	**(6.7)**	**963**	**(18.4)**	**696**	**(13.3)**
Isle of Man	**3**	**(37.5)**	**0**	**(0.0)**	**6**	**(75.0)**	**0**	**(0.0)**
Channel Islands	**2**	**(13.3)**	**1**	**(6.7)**	**4**	**(26.7)**	**2**	**(13.3)**
Wales	**35**	**(11.6)**	**35**	**(11.6)**	**70**	**(23.3)**	**69**	**(22.9)**
Scotland	**49**	**(9.4)**	**28**	**(5.4)**	**97**	**(18.6)**	**50**	**(9.6)**
Northern Ireland	**35**	**(19.4)**	**3**	**(1.7)**	**69**	**(38.3)**	**6**	**(3.3)**
TOTAL	**612**	**(9.8)**	**419**	**(6.7)**	**1209**	**(19.3)**	**823**	**(13.2)**

[1] Includes 34 donors where the hospital postcode was used in place of an unknown donor postcode

5.4 Transplants

The number of kidney transplants by recipient country/Strategic Health Authority of residence is shown in **Table 5.6**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 12.8 to 31.7 pmp across the Strategic Health Authorities and overall was 25.6 pmp. The living donor transplant rate ranged from 11.6 to 22.9 pmp across the Strategic Health Authorities and overall was 16.0 pmp.

Table 5.6 Kidney only transplant rates per million population (pmp), in the UK, 1 April 2011 - 31 March 2012, by country/Strategic Health Authority

Country/Strategic Health Authority of residence	DBD		DCD		**TOTAL**		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East	19	(7.3)	45	(17.2)	64	(24.5)	50	(19.2)
North West	111	(16.0)	70	(10.1)	181	(26.1)	101	(14.6)
Yorkshire and The Humber	99	(18.7)	69	(13.0)	168	(31.7)	63	(11.9)
North of England	**229**	**(15.4)**	**184**	**(12.4)**	**413**	**(27.8)**	**214**	**(14.4)**
East Midlands	95	(21.2)	38	(8.5)	133	(29.7)	63	(14.1)
West Midlands	85	(15.6)	23	(4.2)	108	(19.8)	82	(15.0)
East of England	64	(11.0)	82	(14.1)	146	(25.0)	87	(14.9)
Midlands and East	**244**	**(15.5)**	**143**	**(9.1)**	**387**	**(24.5)**	**232**	**(14.7)**
London	**154**	**(19.7)**	**65**	**(8.3)**	**219**	**(28.0)**	**179**	**(22.9)**
South East Coast	45	(10.3)	11	(2.5)	56	(12.8)	78	(17.8)
South Central	68	(16.4)	35	(8.5)	103	(24.9)	67	(16.2)
South West	42	(8.0)	82	(15.6)	124	(23.5)	61	(11.6)
South of England	**155**	**(11.2)**	**128**	**(9.3)**	**283**	**(20.5)**	**206**	**(14.9)**
England	**782**	**(15.0)**	**520**	**(10.0)**	**1302**	**(24.9)**	**831**	**(15.9)**
Isle of Man	**1**	**(12.5)**	**1**	**(12.5)**	**2**	**(25.0)**	**1**	**(12.5)**
Channel Islands	**1**	**(6.7)**	**0**	**(0.0)**	**1**	**(6.7)**	**7**	**(46.7)**
Wales	**49**	**(16.3)**	**73**	**(24.3)**	**122**	**(40.5)**	**50**	**(16.6)**
Scotland	**100**	**(19.2)**	**44**	**(8.4)**	**144**	**(27.6)**	**57**	**(10.9)**
Northern Ireland	**27**	**(15.0)**	**0**	**(0.0)**	**27**	**(15.0)**	**56**	**(31.1)**
TOTAL[1,2]	**960**	**(15.4)**	**638**	**(10.2)**	**1598**	**(25.6)**	**1003**	**(16.1)**

[1] Excludes 6 recipients of a living donor kidney transplant and 1 recipient of a DCD donor transplant who reside outside of the UK

[2] Includes 1 recipient of a living donor kidney transplant where the postcode was unspecified

The number of kidney only transplants from deceased donors at each transplant centre is shown in **Table 5.7** for adult patients only. Kidney transplants from donors after brain death include four en bloc kidneys and four double kidney transplants in 2011-2012 (seven and seven in 2010-2011). Kidney transplants from donors after circulatory death include no en bloc and 35 double kidney transplants in 2011-2012 (three and 25 in 2010-2011). This table excludes multi-organ transplants: 18 kidney and liver, 2 kidney, liver and pancreas and 173 kidney and pancreas.

Table 5.7 Adult kidney only transplants from deceased donors in the UK, 1 April 2011 - 31 March 2012, by transplant centre/region

Transplant centre	2010-2011		2011-2012	
	DBD	DCD	DBD	DCD
Belfast	24	0	26	0
Birmingham	55	9	62	16
Bristol	38	35	21	32
Cambridge	35	65	34	68
Cardiff	39	40	36	64
Coventry	19	10	22	6
Edinburgh	45	16	41	20
Glasgow	50	14	48	16
Guys	51	11	57	24
Leeds	42	51	59	53
Leicester	38	2	53	0
Liverpool	33	35	37	36
Manchester	79	18	81	41
Newcastle	30	48	21	49
Royal Free	25	25	41	26
Royal London	47	18	35	28
Nottingham	53	20	31	35
Oxford	36	44	35	32
Plymouth	2	23	9	46
Portsmouth	22	17	36	12
Sheffield	36	12	23	16
St Georges	27	10	32	13
WLRTC	67	17	55	5
TOTAL	**893**	**540**	**895**	**638**

WLRTC – West London Renal and Transplant Centre

Living donor kidney transplants decreased by 1% to 1,009 in 2011-2012, representing 36% of the total kidney transplant programme. The total number of living donor adult transplants performed by each transplant centre is shown in **Table 5.8**. Also shown is the number as a percentage of patients listed at the end of the year, to indicate the size of the living donor programme relative to the centre's transplant list.

Most living donor transplants are 'directed'. This means that a kidney is donated to a specific recipient known to the donor - a close family member or friend. There has been a 4% decrease in these transplants. In addition there are now a number of 'undirected' living donor transplants (also known as altruistic donor transplants). Last year 35 such donors donated a kidney to a recipient through the national Kidney Allocation Scheme for deceased donor kidneys (32 transplanted into an adult recipient and 3 transplanted into a paediatric recipient).

In 2011-2012, there were also 51 paired living kidney donor transplants. When a potential donor and recipient are biologically incompatible (blood group or tissue type), they may consider joining a list of others in the same situation with the hope that an exchange of kidneys between them can lead to a compatible living donor transplant. This is known as paired donation. Most exchanges are between two pairs (ie two donors and their respective incompatible recipients), or between three pairs.

As a percentage of the number of patients on the active transplant list at 31 March 2012, the number of living donor adult transplants in the year was 14% and ranged from 7% to 29% at individual transplant centres. The high rate for Coventry is at least partly attributable to their antibody incompatible kidney transplant programme; a number of patients are referred to Coventry for such transplants.

Table 5.8 Adult living donor kidney transplants in the UK, 1 April 2010 - 31 March 2012, and percentage of active transplant list at 31 March, by transplant centre

	2010-2011					2011-2012				
				TOTAL					TOTAL	
Transplant centre	Directed	Paired/ pooled	Non-directed	**N**	**% list**	Directed	Paired/ pooled	Non-directed	**N**	**% list**
Belfast	33	4	2	**39**	**22**	41	7	1	**49**	**27**
Birmingham	47	0	1	**48**	**7**	43	2	5	**50**	**8**
Bristol	34	2	0	**36**	**11**	33	1	2	**36**	**10**
Cambridge	43	2	0	**45**	**19**	43	3	1	**47**	**21**
Cardiff	36	1	1	**38**	**19**	37	0	1	**38**	**21**
Coventry	31	2	0	**33**	**25**	35	0	0	**35**	**29**
Edinburgh	26	2	0	**28**	**11**	24	0	0	**24**	**13**
Glasgow	22	1	0	**23**	**8**	26	1	1	**28**	**9**
Guy's	103	4	3	**110**	**26**	93	5	2	**100**	**24**
Leeds	31	0	2	**33**	**10**	39	2	2	**43**	**14**
Leicester	50	1	3	**54**	**14**	32	3	1	**36**	**10**
Liverpool	24	2	0	**26**	**11**	27	0	1	**28**	**15**
Manchester	60	5	3	**68**	**12**	61	7	2	**70**	**12**
Newcastle	49	1	1	**51**	**24**	52	0	3	**55**	**25**
Nottingham	17	3	1	**21**	**11**	10	1	1	**12**	**7**
Oxford	42	3	2	**47**	**13**	44	4	2	**50**	**16**
Plymouth	12	0	0	**12**	**12**	9	3	0	**12**	**15**
Portsmouth	15	1	1	**17**	**8**	14	2	1	**17**	**7**
Royal Free	35	3	0	**38**	**14**	37	3	3	**43**	**16**
Royal London	45	0	1	**46**	**19**	39	1	1	**41**	**18**
Sheffield	19	0	0	**19**	**10**	20	0	0	**20**	**10**
St George's	49	1	3	**53**	**18**	42	4	4	**50**	**16**
WLRTC	68	1	1	**70**	**15**	54	2	0	**56**	**11**
TOTAL	**891**	**39**	**25**	**955**	**14**	**855**	**51**	**34**[1]	**940**	**14**

WLRTC – West London Renal Transplant Centre
[1] Includes 2 domino donor transplants

The number of deceased donor and living donor transplants in paediatric patients (<18 years) performed by each paediatric transplant centre is shown in **Table 5.9**. There were 69 living donor transplants and 70 deceased donor transplants in paediatric patients in 2011-2012. The paediatric transplant list decreased by 8% from 96 patients at 31 March 2011 to 88 at the end of March 2012.

Occasionally, older paediatric patients are listed and/or transplanted at adult kidney transplant centres and these are indicated in **Table 5.9**.

At 31 March 2012, there were approximately 29,500 recipients with a functioning kidney transplant (including multi-organ transplants) being followed-up as reported to the UK Transplant Registry.

Table 5.9 Paediatric patient kidney transplants in the UK, 1 April 2010 - 31 March 2012, by transplant centre

	2010-2011				2011-2012			
Paediatric transplant centre	DBD	DCD	Living donor	**TOTAL**	DBD	DCD	Living donor	**TOTAL**
Belfast	2	0	7	**9**	1	0	3	**4**
Birmingham	12	0	7	**19**	7	0	7	**14**
Bristol	7	1	8	**16**	6	0	6	**12**
Glasgow	2	0	2	**4**	2	0	3	**5**
Great Ormond Street	10	1	9	**20**	8	1	21	**30**
Guy's	5	0	7	**12**	11	0	13	**24**
Leeds	8	0	5	**13**	13	0	3	**16**
Manchester	6	0	10	**16**	5	0	7	**12**
Newcastle	2	0	2	**4**	0	0	4	**4**
Nottingham	14	0	5	**19**	15	0	1	**16**
Adult centres	2	0	4	**6**	1	0	1	**2**
TOTAL	**70**	**2**	**66**	**138**	**69**	**1**	**69**[1]	**139**

[1] Includes 3 non-directed donor transplants

Rates of pre-emptive kidney only transplantation are shown in **Table 5.10**. Of the 2,608 kidney only transplant recipients in 2011-2012, requirement for dialysis at time of transplant was reported for 2,506 (96%). Of these 2,506 transplants, 479 (19%) were carried out in pre-dialysis patients.

Pre-emptive transplants accounted for 26% of all paediatric kidney only transplants with reported dialysis status, compared with 19% of those in adults. Living donor transplants are more likely to be carried out before the need for dialysis than deceased donor transplants: 33% and 11% respectively. This is because a living donor transplant can often be carried out more quickly than a deceased donor kidney transplant as the latter often necessitates a long waiting time.

Table 5.10 Pre-emptive kidney only transplants in the UK, 1 April 2011 - 31 March 2012

	Number of kidney only transplants	Number of transplants with known dialysis status at transplant (% of all)	Percentage of patients transplanted prior to the need for dialysis (of those with known status)
Adult			
Deceased donor transplant	1533	1508 (98.4)	10.2
Living donor transplant	940	869 (92.4)	33.5
Paediatric			
Deceased donor transplant	66	66 (100)	21.2
Living donor transplant	69	63 (91.3)	31.9

The length of time that elapses between a kidney being removed from the donor to its transplantation into the recipient is called the Cold Ischaemia Time (CIT). Generally, the shorter this time, the more likely the kidney is to work immediately and the better the long-term outcome. The factors which determine CIT include a) transportation of the kidney from the retrieval hospital to the hospital where the transplant is performed, b) the need to tissue type the donor and cross-match the donor and potential recipients, c) the occasional necessity of moving the kidney to another hospital if a transplant cannot go ahead, d) contacting and preparing the recipient for the transplant and e) access to the operating theatre. Median CITs are shown in addition to inter-quartile ranges in **Table 5.11**.

Table 5.11 Median cold ischaemia time for kidney only transplants in the UK, 1 April 2011 - 31 March 2012

	Number of kidney only transplants[1]	Median (hours)	Inter-quartile range[2] Q1	Q3
Adult				
DBD donors	874	14.7	11.7	18.0
DCD donors	627	13.4	10.5	16.5
Total	**1501**	**14.1**	**11.2**	**17.5**
Paediatric DBD donors	**64**	**13.7**	**12.0**	**16.3**
TOTAL	**1565**	**14.1**	**11.3**	**17.4**

[1] Not all cold ischaemia times are reported
[2] 25% of times are shorter than Q1, 25% are larger than Q3

5.5 Demographic characteristics

The age group, sex, ethnicity and blood group of deceased donors, transplant recipients and patients on the transplant list are shown in **Table 5.12**. Note that all percentages quoted are based only on data where relevant information was available. Ten percent of donors and seven percent of transplant list patients are aged at least 70 years. There are differences in ethnicity of deceased donors, transplant recipients and patients listed for transplant. Changes made to the Kidney Allocation Scheme in 2006 mean that tissue matching criteria between donor and recipient are less strict than previously and waiting time to transplant is now more important than it was in deciding kidney allocation. These changes have an indirect benefit for patients from ethnic minority groups, who are less often a good tissue match with the predominantly white donor pool. As a result, access to transplantation is becoming more equitable.

Table 5.12 Demographic characteristics of deceased kidney donors and transplant recipients 1 April 2011 - 31 March 2012, and transplant list patients at 31 March

	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
Age group(years)						
0 - 17	43	(4)	70	(4)	88	(1)
18 - 34	147	(14)	229	(13)	738	(11)
35 - 49	247	(24)	565	(32)	1968	(30)
50 - 59	257	(25)	430	(24)	1757	(26)
60 - 69	233	(23)	387	(22)	1595	(24)
70+	104	(10)	111	(6)	487	(7)
Mean (SD)	50	(17)	49	(15)	51	(14)
Sex						
Male	524	(51)	1121	(63)	3900	(59)
Female	507	(49)	671	(37)	2733	(41)
Ethnicity						
White	988	(96)	1425	(80)	4673	(71)
Asian	15	(1)	215	(12)	1114	(17)
Black	11	(1)	109	(6)	629	(9)
Chinese	2	(0)	19	(1)	90	(1)
Other	15	(1)	24	(1)	93	(1)
Not reported		-		-	34	
Blood group						
O	476	(46)	757	(42)	3412	(51)
A	422	(41)	717	(40)	2054	(31)
B	95	(9)	212	(12)	999	(15)
AB	38	(4)	106	(6)	168	(3)
TOTAL	**1031**	**(100)**	**1792**	**(100)**	**6633**	**(100)**

Pancreas Activity

Key messages

- A new National Pancreas Allocation Scheme was introduced on 1 December 2010
- The number of patients waiting on the pancreas transplant list fell by 21% during the year, to 253 at 31 March 2012
- The number of pancreas donors after brain death fell by 4% to 324, while transplants from donors after brain death increased by 8% to 188
- The number of pancreas donors after circulatory death increased by 23% to 86, while transplants from donors after circulatory death increased by 42% to 51
- 30 islet transplants were made possible by the pancreas islet transplant programme

6.1 Overview

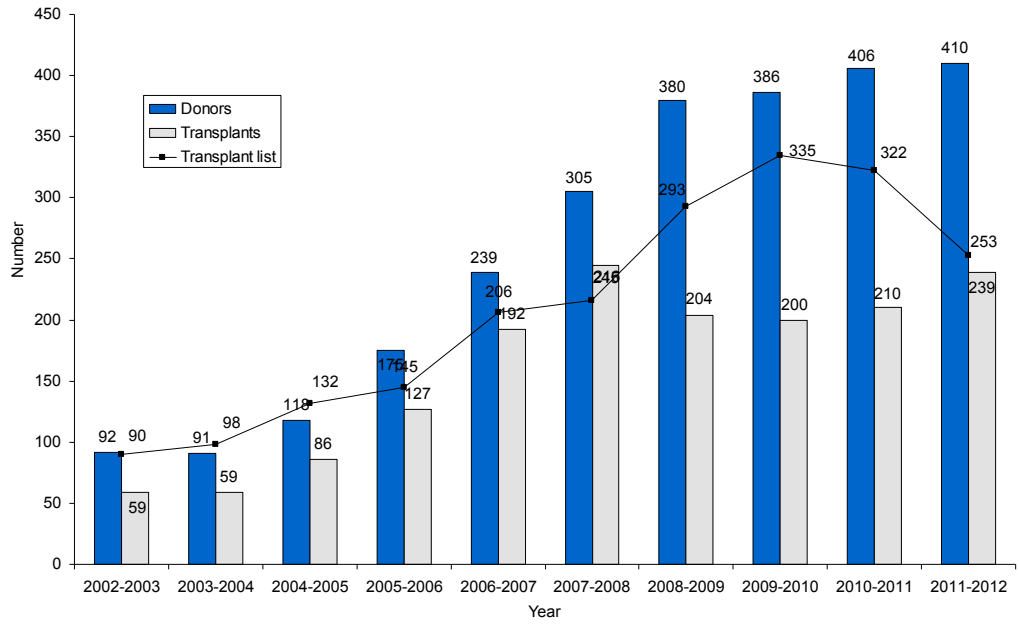
The number of patients registered on the active transplant list at 31 March for a pancreas only or simultaneous kidney/pancreas (SPK) transplant has increased significantly over the last ten years from 90 patients in 2003 to 253 patients in 2012. The number of pancreas donors and transplants has also increased steadily from 92 donors resulting in 59 transplants in 2002-2003, to 410 donors and 239 transplants in 2011-2012, although the actual number of transplants is less than in 2007-2008. A summary of activity for deceased donor pancreas transplants and the transplant list for 1 April 2002 - 31 March 2012 is shown in **Figure 6.1**.

A new National Pancreas Allocation Scheme was introduced on 1 December 2010. Patients are now prioritised according to a points system based on a range of clinical factors. A score is calculated for every potentially suitable patient on the national active transplant list and the pancreas is allocated preferentially to the patient with the most points. This differs from the previous system in which donor organs were allocated to transplant centres to select recipients rather than identifying specific patients directly.

Pancreases from donors after brain death and donors after circulatory death are allocated through this scheme. Patients listed for a vascularised pancreas or islet transplant are prioritised through one combined national transplant list. The new scheme aims to reduce the incidence of long waiting patients and to improve equity in access to transplant irrespective of where in the UK each patient resides.

Throughout this chapter, intestinal transplants involving a pancreas are not included in the pancreas transplant activity reported. Any pancreases retrieved and used for such transplants are however included in the pancreas donor activity. In 2011/2012 there were 10 intestinal transplants.

Figure 6.1 Deceased pancreas and islet programme in the UK, 1 April 2002 - 31 March 2012
Number of donors, transplants and patients on the active transplant list at 31 March



6.2 Transplant list

Table 6.1 shows the number of patients on the active transplant lists at 31 March 2012 by centre. The number of patients registered on the pancreas transplant list decreased by 21% in the year: on 31 March 2012, 253 patients were registered active, compared with 322 at the end of March 2011

Of the 253 patients on the active transplant list at 31 March 2012, 193 (76%) required a SPK transplant (250 at 31 March 2011), 35 (14%) patients required a pancreas only transplant (48 at 31 March 2011) and 24 (9%) were registered for a pancreas islet transplant.

The outcome of patients registered on the UK pancreas transplant list at 1 April 2011, or subsequently registered during the financial year, is shown in **Table 6.2**. 64 patients joined the pancreas transplant list while 189 joined the list for kidney and pancreas.

Patients listed for a routine islet transplant are generally waiting for their first islet graft. The majority of islet transplant recipients are likely to require more than one graft to complete their treatment. To optimise transplant outcome the follow-up graft should be performed within six to twelve months of the first. Patients requiring follow-up grafts are priority listed.

Table 6.1 Patients on the pancreas transplant lists at 31 March 2012 (2011) in the UK, by centre

Centre	Active transplant lists								TOTAL	
	Kidney/pancreas		Pancreas alone		Islet					
					Routine		Priority			
Cambridge	13	(11)	1	(0)	0	(0)	0	(0)	**14**	**(11)**
Cardiff	2	(6)	5	(1)	0	(0)	0	(0)	**7**	**(7)**
Edinburgh	21	(35)	0	(0)	0	(2)	3	(1)	**24**	**(38)**
Guy's	27	(22)	6	(3)	0	(0)	0	(0)	**33**	**(25)**
Manchester	46	(56)	4	(2)	4	(2)	0	(0)	**54**	**(60)**
Newcastle	10	(6)	1	(3)	2	(6)	3	(2)	**16**	**(17)**
Oxford	65	(101)	15	(21)	4	(8)	1	(0)	**85**	**(130)**
Royal Free	0	(0)	0	(0)	4	(3)	3	(0)	**7**	**(3)**
WLRTC	9	(13)	4	(18)	0	(0)	0	(0)	**13**	**(31)**
TOTAL	**193**	**(250)**	**36**[1]	**(48)**	**14**	**(21)**	**10**	**(3)**	**253**	**(322)**

WLRTC – West London Renal and Transplant Centre
[1] Includes one patient waiting for a liver and pancreas transplant

Table 6.2 Pancreas transplant list and new registrations in the UK, 1 April 2010 - 31 March 2011

Outcome of patient at 31 March 2011	Active and suspended patients at 1 April 2010		New registrations in 2010-2011[1]		TOTAL	
	N	%	N	%	N	%
Pancreas transplant list						
Remained active/suspended	98	68	38	59	**136**	**65**
Transplanted	24	17	19	30	**43**	**21**
Removed	20[2]	14	5[3]	8	**25**	**12**
Died	2	1	2	3	**4**	**2**
TOTAL	**144**		**64**		**208**	
Kidney/pancreas transplant list						
Remained active/suspended	183	49	155	82	**338**	**60**
Transplanted	158	42	32	17	**190**	**34**
Removed	17	5	1	1	**18**	**3**
Died	15	4	1	1	**16**	**3**
TOTAL	**373**		**189**		**562**	

[1] Includes re-registrations for second or subsequent transplants
[2] Includes 6 registration removed from pancreas list but active on kidney/pancreas list
[3] Includes 2 registration removed from pancreas list but active on kidney/pancreas list

An indication of longer term outcomes for patients listed for a pancreas or kidney/pancreas transplant are summarised in **Figure 6.2**. This shows the proportion of patients transplanted or still waiting six months, one year, two years and three years after joining the list. It also shows the proportion removed from the transplant list (typically because they become too unwell for transplant) and those dying while on the transplant list. 43% of patients are transplanted within one year, while three years after listing 75% of patients have received a transplant. The median (average) waiting time for a pancreas transplant is 278 days and is shown by blood group in **Table 6.3** and ethnicity in **Table 6.4**. Note that these waiting times are not adjusted for other relevant factors which may be influential and which may differ across blood or ethnic groups.

Figure 6.2 **Post-registration outcome for 367 new pancreas only and kidney/pancreas registrations made in the UK, 1 April 2008 - 31 March 2009**

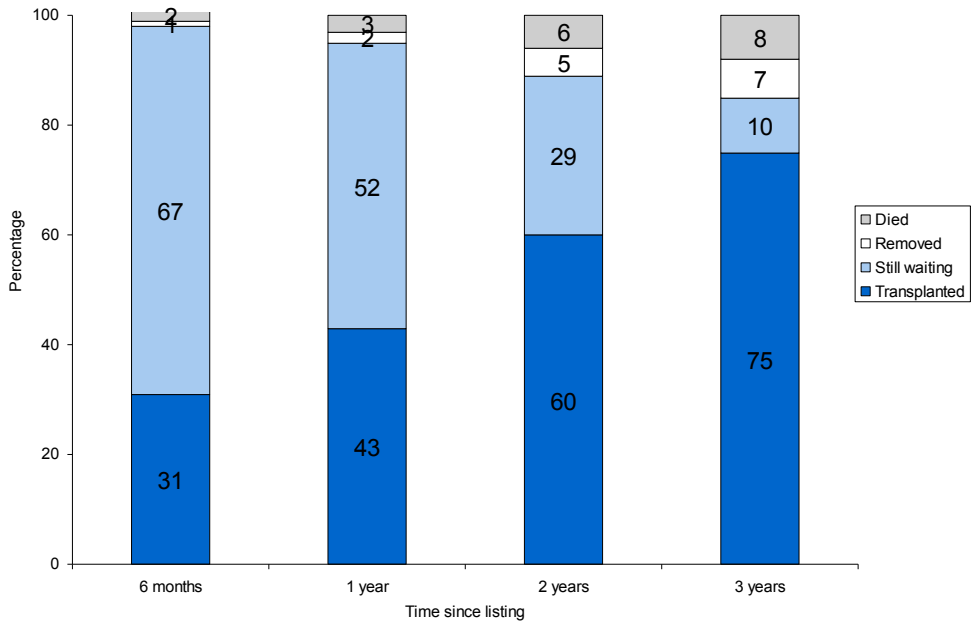


Table 6.3 **Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2006 - 31 March 2010**

Blood group	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
O	571	344	297 - 391
A	537	241	203 - 279
B	114	267	142 - 392
AB	31	86	25 - 147
TOTAL	**1253**	**278**	**247 - 309**

Table 6.4 **Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2006 - 31 March 2010**

Ethnicity	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
White	1166	277	244 - 310
Asian	54	400	256 - 544
Black	18	105	62 - 148
Other	15	269	0 - 653
TOTAL	**1253**	**278**	**247 - 309**

6.3 Donor and organ supply

Of the 652 organ donors after brain death in the UK in 2011-2012, 324 (50%) donated a pancreas. There were 86 pancreas donors after circulatory death in 2011-2012. **Table 6.5** shows this activity by country/Strategic Health Authority of the donor's residence. No adjustments have been made for potential demographic differences in populations.

The overall rate for pancreas donors after brain death is 5.2 pmp, with rates ranging from 3.8 to 9.2 pmp across the Strategic Health Authorities and for donors after circulatory death is 1.4 pmp, with rates ranging from 0.6 to 2.7 pmp across the Strategic Health Authorities.

Table 6.5 Pancreas donation rates for deceased donors in the UK, 1 April 2011 - 31 March 2012, by country/Strategic Health Authority[1]

Country/Strategic Health Authority of residence	Pancreas donors (pmp) DBD		DCD		TOTAL	
North East	24	(9.2)	2	(0.8)	**26**	**(10.0)**
North West	28	(4.0)	8	(1.2)	**36**	**(5.2)**
Yorkshire and The Humber	21	(4.0)	3	(0.6)	**24**	**(4.5)**
North of England	**73**	**(4.9)**	**13**	**(0.9)**	**86**	**(5.8)**
East Midlands	17	(3.8)	8	(1.8)	**25**	**(5.6)**
West Midlands	25	(4.6)	6	(1.1)	**31**	**(5.7)**
East of England	30	(5.1)	11	(1.9)	**41**	**(7.0)**
Midlands and East	**72**	**(4.6)**	**25**	**(1.6)**	**97**	**(6.2)**
London	**44**	**(5.6)**	**10**	**(1.3)**	**54**	**(6.9)**
South East Coast	31	(7.1)	5	(1.1)	**36**	**(8.2)**
South Central	18	(4.3)	5	(1.2)	**23**	**(5.6)**
South West	24	(4.6)	14	(2.7)	**38**	**(7.2)**
South of England	**73**	**(5.3)**	**24**	**(1.7)**	**97**	**(7.0)**
England	**262**	**(5.0)**	**72**	**(1.4)**	**334**	**(6.4)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Wales	**16**	**(5.3)**	**6**	**(2.0)**	**22**	**(7.3)**
Scotland	**28**	**(5.4)**	**7**	**(1.3)**	**35**	**(6.7)**
Northern Ireland	**18**	**(10.0)**	**1**	**(0.6)**	**19**	**(10.6)**
TOTAL	**324**	**(5.2)**	**86**	**(1.4)**	**410**	**(6.6)**

[1] Includes 9 donors where the hospital postcode was used in place of an unknown donor postcode

6.4 Transplants

The number of pancreas transplants by recipient country of residence/Strategic Health Authority is shown in **Table 6.6**. No adjustments have been made for potential demographic differences in populations. For donors after brain death the transplant rate ranged from 1.3 to 4.8 pmp across Strategic Health Authorities and overall was 3.0 pmp. For donors after circulatory death the overall rate was 0.8 pmp and ranged from 0.3 to 1.2 pmp across Strategic Health Authorities.

Table 6.6 Pancreas transplant rates per million population (pmp), in the UK, 1 April 2011 - 31 March 2012, by country/Strategic Health Authority

Country/Strategic Health Authority of residence	DBD N	DBD (pmp)	DCD N	DCD (pmp)	TOTAL N	TOTAL (pmp)
North East	12	(4.6)	1	(0.4)	**13**	**(5.0)**
North West	14	(2.0)	2	(0.3)	**16**	**(2.3)**
Yorkshire and The Humber	9	(1.7)	3	(0.6)	**12**	**(2.3)**
North of England	**35**	**(2.4)**	**6**	**(0.4)**	**41**	**(2.8)**
East Midlands	6	(1.3)	3	(0.7)	**9**	**(2.0)**
West Midlands	22	(4.0)	6	(1.1)	**28**	**(5.1)**
East of England	13	(2.2)	7	(1.2)	**20**	**(3.4)**
Midlands and East	**41**	**(2.6)**	**16**	**(1.0)**	**57**	**(3.6)**
London	**25**	**(3.2)**	**7**	**(0.9)**	**32**	**(4.1)**
South East Coast	9	(2.1)	5	(1.1)	**14**	**(3.2)**
South Central	20	(4.8)	3	(0.7)	**23**	**(5.6)**
South West	25	(4.7)	5	(0.9)	**30**	**(5.7)**
South of England	**54**	**(3.9)**	**13**	**(0.9)**	**67**	**(4.9)**
England	**155**	**(3.0)**	**42**	**(0.8)**	**197**	**(3.8)**
Isle of Man	**0**	**(0.0)**	**1**	**(12.5)**	**1**	**(12.5)**
Channel Islands	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Wales	**11**	**(3.7)**	**5**	**(1.7)**	**16**	**(5.3)**
Scotland	**19**	**(3.6)**	**3**	**(0.6)**	**22**	**(4.2)**
Northern Ireland	**3**	**(1.7)**	**0**	**(0.0)**	**3**	**(1.7)**
TOTAL	**188**	**(3.0)**	**51**	**(0.8)**	**239**	**(3.8)**

There were 239 deceased donor pancreas transplants in 2011-2012 representing an increase of 14% on the 210 transplants performed in 2010-2011. Of these 239, 173 (72%) were SPK transplants, 36 (15%) were pancreas only transplants (pancreas transplants alone (PTA) or pancreas after kidney (PAK)) and 30 (13%) were islet transplants. The number of transplants performed at each centre is shown in **Table 6.7** by transplant type and **Table 6.8** by donor type. Note that King's College and The Royal Free only perform islet transplants.

The length of time that elapses between a pancreas being removed from the donor to its transplantation into the recipient is called the Cold Ischaemia Time (CIT). Generally, the shorter this time, the more likely the pancreas is to work immediately and the better the long-term outcome. The median CIT for a DBD donor transplant is 11.9 hours (Inter-Quartile (IQ) range 9.9 - 13.6) and for a DCD donor transplant is 10.8 hours (IQ range 9.0 - 13.1) and overall is 11.8 hours (IQ range 9.6 - 13.4).

At 31 March 2012, there were approximately 1,500 recipients with a functioning pancreas transplant (including multi-organ transplants) being followed-up, as reported to the UK Transplant Registry.

Table 6.7 Pancreas transplants, 1 April 2011 - 31 March 2012 (2010-2011), by centre

Centre	Transplant type									
	SPK		PTA		PAK		Islet			
							Routine		Priority	
Cambridge	16	(24)	0	(1)	0	(1)	-	(-)	-	(-)
Cardiff	8	(10)	4	(1)	1	(3)	-	(-)	-	(-)
Edinburgh	17	(6)	0	(1)	0	(0)	5	(1)	3	(0)
Guy's	23	(19)	2	(1)	1	(4)	-	(-)	-	(-)
King's College	-	-	-	-	-	-	1	(1)	0	(1)
Manchester	27	(20)	1	(1)	0	(4)	2	(0)	0	(1)
Newcastle	2	(4)	0	(2)	3	(0)	5	(2)	5	(0)
Oxford	70	(63)	15	(16)	3	(4)	5	(2)	1	(2)
Royal Free	-	-	-	-	-	-	3	(2)	0	(1)
WLRTC	10	(9)	0	(0)	6	(3)	-	(-)	-	(-)
TOTAL	**173**	**(155)**	**22**	**(23)**	**14**	**(19)**	**21**	**(8)**	**9**	**(5)**

WLRTC - West London Renal and Transplant Centre

Table 6.8 Pancreas transplants, 1 April 2011 - 31 March 2012 by centre

Centre	Transplant and donor type							
	SPK		PTA		Islet		**TOTAL**	
	DBD	DCD	DBD	DCD	DBD	DCD	**DBD**	**DCD**
Cambridge	8	8	0	0	-	-	**8**	**8**
Cardiff	5	3	2	3	-	-	**7**	**6**
Edinburgh	16	1	0	0	6	2	**22**	**3**
Guy's	14	9	2	1	-	-	**16**	**10**
King's College	-	-	-	-	1	0	**1**	**0**
Manchester	21	6	1	0	2	0	**24**	**6**
Newcastle	2	0	3	0	9	1	**14**	**1**
Oxford	62	8	10	8	6	0	**78**	**16**
Royal Free	-	-	-	-	3	0	**3**	**0**
WLRTC	10	0	5	1	-	-	**15**	**1**
TOTAL	**138**	**35**	**23**	**13**	**27**	**3**	**188**	**51**

WLRTC - West London Renal and Transplant Centre

6.5 Demographic characteristics

The age group, sex, ethnicity and blood group of deceased donors, transplant recipients and patients on the transplant list is shown in **Table 6.9**.

Table 6.9 Demographic characteristics of deceased pancreas donors and transplant recipients, 1 April 2011 - 31 March 2012, and transplant list patients at 31 March

	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
Age group (years)						
0 - 17	29	(7)	0	(0)	45	(18)
18 - 34	103	(25)	47	(20)	151	(60)
35 - 49	144	(35)	133	(56)	52	(21)
50 - 59	119	(29)	50	(21)	5	(2)
60 - 69	15	(4)	7	(3)	0	(0)
70+	0	(0)	2	(1)	43	(8)
Mean (SD)	40	(14)	43	(9)	45	(18)
Sex						
Male	194	(47)	130	(54)	142	(56)
Female	216	(53)	109	(46)	111	(44)
Ethnicity						
White	384	(94)	217	(91)	230	(91)
Asian	9	(2)	16	(7)	14	(6)
Black	5	(1)	4	(2)	7	(3)
Chinese	1	(0)	0	(0)	1	(0)
Other	11	(3)	2	(1)	0	(0)
Not reported					1	-
Blood group						
O	198	(48)	106	(44)	141	(56)
A	167	(41)	99	(41)	91	(36)
B	38	(9)	26	(11)	20	(8)
AB	7	(2)	8	(3)	1	(0)
TOTAL	**410**	**(100)**	**239**	**(100)**	**253**	**(100)**

Cardiothoracic Activity

Key messages

- At 31 March 2012, there were 169 patients on the active heart transplant list, 216 on the lung list and 16 on the heart/lung list
- Of the 652 organ donors after brain death, 235 (36%) were cardiothoracic organ donors
- The number of heart transplants from deceased donors increased by 5% to 138 this year; over half of these were urgent heart transplants
- The number of lung or heart/lung transplants from deceased donors increased by 5% to 180

7.1 Overview

Last year the number of heart transplants increased by 5% to 138 and the number of lung or heart/lung transplants increased by 5% to 180. There were increases in both the heart and the lung transplant lists since March 2011. The number of patients registered on the active heart transplant list at year end has increased by 52% since 2003, while the number of patients registered for a lung or heart/lung transplant has decreased by 30% since 2003.

A summary of the deceased donor cardiothoracic activity from 1 April 2002 to 31 March 2012 is shown in **Figure 7.1** for heart activity and **Figure 7.2** for lung activity. Donors who donate both heart and lung(s) are included in both figures, but heart/lung block transplants and patients active on the transplant list for a heart/lung block are only included in **Figure 7.2**.

Figure 7.1 Deceased donor heart programme in the UK, 1 April 2002 - 31 March 2012
Number of donors, transplants and patients on the active transplant list at 31 March

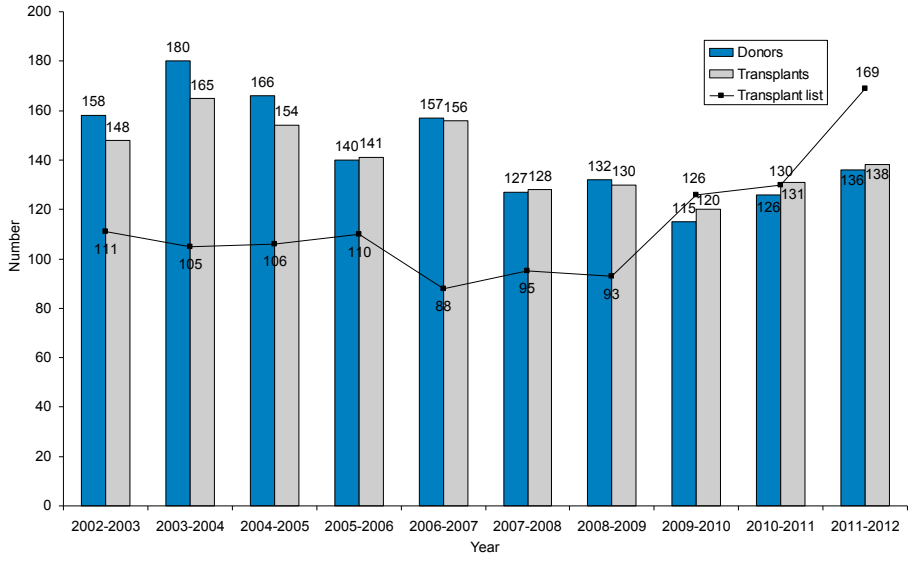
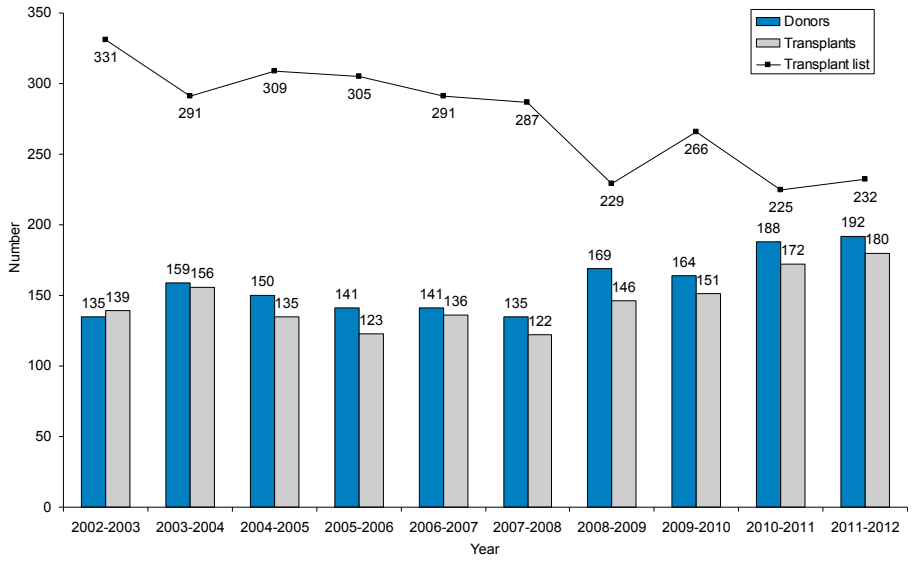


Figure 7.2 Deceased donor lung and heart/lung programme in the UK, 1 April 2002 - 31 March 2012
Number of donors, transplants and patients on the active transplant list at 31 March



7.2 Transplant list

Table 7.1 shows the number of patients on the active transplant lists at 31 March 2012 by centre. The lung transplant list accounts for 54% of the patients waiting for a cardiothoracic transplant. Overall, Newcastle and Harefield have the largest cardiothoracic transplant lists.

During 2011-2012, 257 patients joined the heart transplant list while 9 joined the heart/lung list and 250 joined the lung transplant list. Outcomes for patients on the list at 1 April 2011 and those joining the list during the year are shown in **Table 7.2**.

An indication of longer term outcomes for adult patients listed for a cardiothoracic organ transplant is summarised in **Figure 7.3** and **Figure 7.4**. This shows the proportion of patients transplanted or still waiting six months, one year, two years and three years after joining the non-urgent heart list or the lung list, respectively. It also shows the proportion removed from the transplant list and those dying while on the transplant list. Within six months of listing, 42% of non-urgent heart patients are transplanted while 9% have died while waiting. For patients listed for a lung transplant, only 32% are transplanted within six months, rising to 58% after three years. The patients removed from these lists may also subsequently have died.

Table 7.1 Patients on the cardiothoracic transplant lists at 31 March 2012 (2011) in the UK, by centre

Centre	Active transplant lists									
	Heart				Heart/lung		Lung		TOTAL	
	Non-urgent		Urgent							
Adult										
Birmingham	7	(8)	0	(2)	2	(2)	16	(20)	**25**	**(32)**
Glasgow	8	(6)	1	(0)	0	(0)	0	(0)	**9**	**(6)**
Great Ormond Street	1	(2)	0	(0)	0	(0)	0	(0)	**1**	**(2)**
Harefield	39	(30)	3	(0)	2	(2)	66	(57)	**110**	**(89)**
Manchester	16	(10)	1	(1)	0	(0)	24	(34)	**41**	**(45)**
Newcastle	33	(22)	2	(1)	3	(1)	74	(62)	**112**	**(86)**
Papworth	42	(30)	2	(1)	6	(6)	23	(27)	**73**	**(64)**
TOTAL	**146**	**(108)**	**9**	**(5)**	**13**	**(11)**	**203**	**(200)**	**371**	**(324)**
Paediatric										
Great Ormond Street	7	(7)	3	(3)	3	(2)	12	(10)	**25**	**(22)**
Newcastle	1	(1)	3	(6)	0	(0)	1	(2)	**5**	**(9)**
TOTAL	**8**	**(8)**	**6**	**(9)**	**3**	**(2)**	**13**	**(12)**	**30**	**(31)**

Table 7.2 Cardiothoracic transplant lists and new registrations in the UK, 1 April 2011 - 31 March 2012

Outcome of patient at 31 March 2012	Active and suspended patients at 1 April 2011		New registrations in 2011-2012[1]		TOTAL	
	N	%	N	%	**N**	**%**
Heart transplant list						
Remained active/suspended	63	46	110	43	**173**	**44**
Transplanted	37	27	98	38	**135**	**34**
Removed	27	20	32	12	**59**	**15**
Died	11	8	17	7	**28**	**7**
TOTAL	**138**		**257**		**395**	
Heart/lung transplant list						
Remained active/suspended	9	64	6	55	**15**	**60**
Transplanted[2]	1	7	2	18	**3**	**12**
Removed	4	29	1	9	**5**	**20**
Died	2	14	0	0	**2**	**8**
TOTAL	**16**		**9**		**25**	
Lung transplant list						
Remained active/suspended	73	35	141	56	**214**	**47**
Transplanted	86	42	88	35	**174**	**38**
Removed	18	9	1	0	**19**	**4**
Died	30	14	20	8	**50**	**11**
TOTAL	**207**		**250**		**457**	

[1] Includes re-registrations for second or subsequent transplants
[2] Heart, lung or heart/lung

Figure 7.3 Post-registration outcome for 113 new non-urgent heart only registrations made in the UK, 1 April 2008 - 31 March 2009

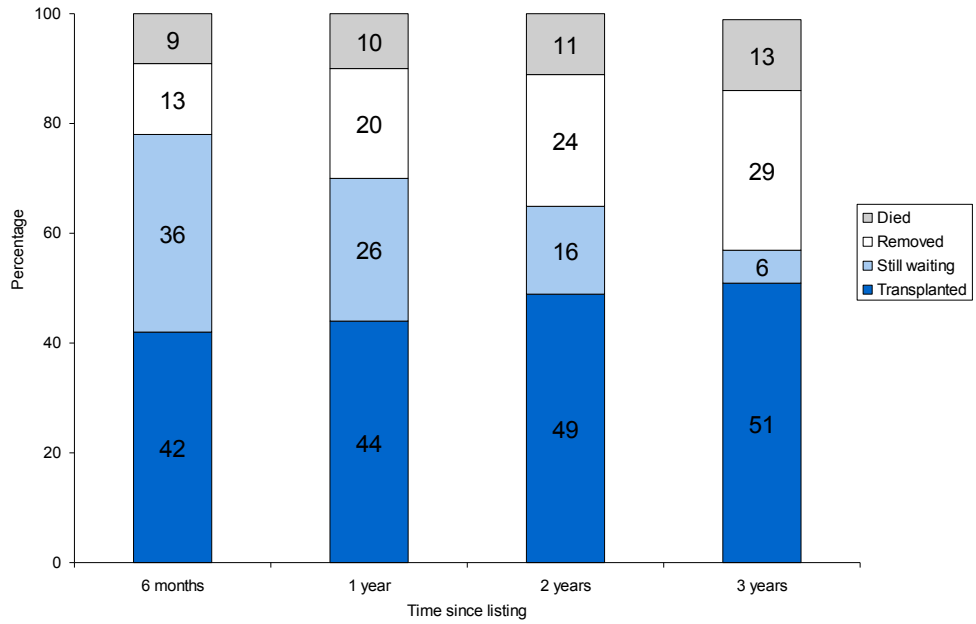


Figure 7.4 Post-registration outcome for 196 new lung only registrations made in the UK, 1 April 2008 - 31 March 2009

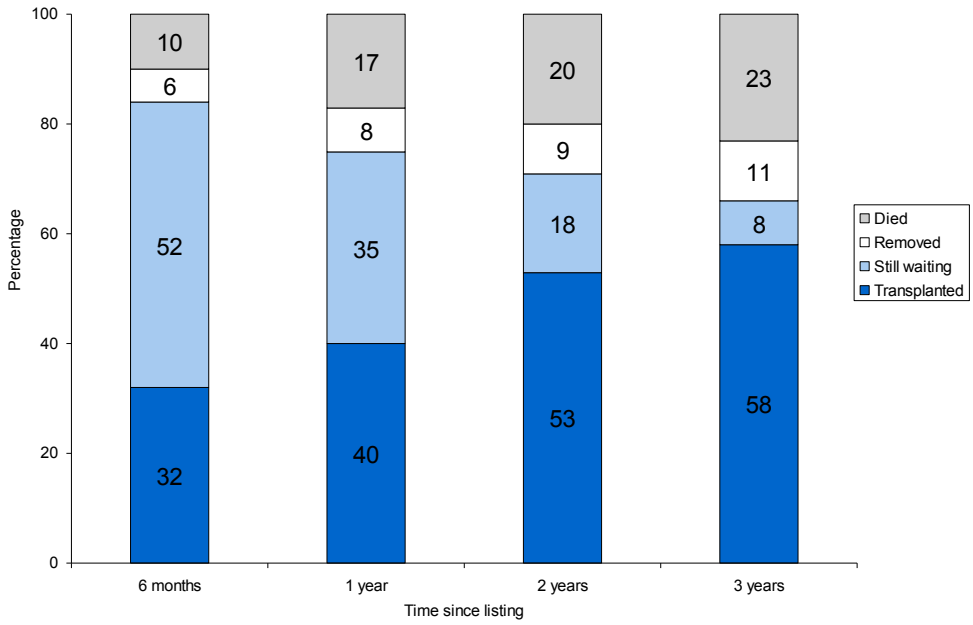


Table 7.3 and **7.4** show the median waiting time to cardiothoracic transplant by blood group and ethnicity, respectively, for patients registered between April 2007 and March 2010. Median waiting time for adult non-urgent heart patients is 253 days overall, compared with 412 days for adult lung patients. The median waiting time for paediatric non-urgent heart patients is 94 days; this is not broken down by blood group or ethnicity due to low numbers. Paediatric recipients are aged less than 16 years at time of listing. Note that these waiting times are not adjusted for other relevant factors which may be influential and which may differ across blood or ethnic groups.

Table 7.3 Median waiting time to cardiothoracic transplant in the UK, for patients registered 1 April 2007 - 31 March 2010

Blood group	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult non-urgent heart			
O[1]	120	741	-
A	115	147	83 - 211
B	31	293	0 - 693
AB	10	148	17 - 279
TOTAL	**276**	**253**	**145 - 361**
Paediatric non-urgent heart	**58**	**94**	**40 - 148**
Adult lung			
O	302	548	469 - 627
A	238	257	198 - 316
B	64	591	349 - 833
AB	24	126	21 - 231
TOTAL	**628**	**412**	**343 - 481**

[1] Unable to estimate 95% confidence interval

Table 7.4 Median waiting time to cardiothoracic transplant in the UK, for patients registered 1 April 2007 - 31 March 2010

Ethnicity	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult non-urgent heart			
White	245	249	138 - 360
Asian	13	387	0 - 844
Black	11	-	-
Other	7	-	-
TOTAL	**276**	**253**	**145 - 361**
Paediatric non-urgent	**58**	**94**	**40 - 148**
Adult lung			
White	609	402	334 - 470
Asian	9	-	-
Black	7	-	-
Other	3	-	-
TOTAL	**628**	**412**	**343 - 481**

Median waiting time not reported for fewer than 10 patients

Table 7.5 Cardiothoracic organ donors in the UK, 1 April 2011 - 31 March 2012 (2010-2011), by age group and retrieval centre

Allocation zone of donor hospital	Type of cardiothoracic donor								TOTAL	
	Heart only		Heart & lung		Lung(s) only DBD		Lung(s) only DCD			
Adult										
Birmingham	13	(14)	15	(9)	15	(10)	8	(6)	51	(39)
Glasgow	1	(5)	3	(5)	6	(10)	2	(1)	12	(21)
Harefield	9	(7)	5	(8)	23	(29)	2	(8)	39	(52)
Manchester	9	(5)	6	(7)	17	(8)	2	(2)	34	(22)
Newcastle	9	(12)	14	(11)	24	(19)	2	(5)	49	(47)
Papworth	18	(13)	26	(14)	13	(24)	5	(4)	62	(55)
TOTAL	**59**[1]	**(56)**	**69**	**(54)**	**98**	**(100)**	**21**	**(26)**	**247**	**(236)**
Paediatric										
Birmingham	1	(0)	1	(0)	1	(0)	0	(0)	3	(0)
Glasgow	1	(3)	1	(1)	0	(0)	0	(0)	2	(4)
Harefield	2	(1)	0	(1)	0	(0)	0	(0)	2	(2)
Manchester	2	(1)	0	(0)	0	(0)	0	(0)	2	(1)
Newcastle	0	(1)	0	(1)	0	(1)	0	(0)	0	(3)
Papworth	3	(3)	0	(4)	0	(0)	1	(0)	4	(7)
TOTAL	**9**	**(9)**	**2**	**(7)**	**1**	**(1)**	**1**	**(0)**	**13**	**(17)**

Paediatric donors are aged 15 years or under

[1] Includes 3 domino heart donors

7.3 Donor and organ supply

The number of cardiothoracic organ donors classified by allocation zone of the donor hospital is summarised in **Table 7.5**. The numbers reflect the number of organs retrieved from within each zone (by any retrieval team) rather than the number of retrievals made by that centre. 21 of the 119 adult lung only donors were donors after circulatory death. There were three domino heart donors. Of the 226 adult cardiothoracic donors after brain death, 26% donated only the heart, 31% heart and lung and 43% lung only. Of the 12 paediatric cardiothoracic donors after brain death, 75% donated only the heart, 17% heart and lung and 8% lung only.

Table 7.6 shows the number of organ donors after brain death identified in each allocation zone, the number that donated cardiothoracic organs and the number of organs retrieved.

Of the 652 solid organ donors after brain death, 36% donated cardiothoracic organs. Overall, 97% of the 460 organs retrieved were transplanted: 100% of hearts and 96% of lungs.

Table 7.6 Cardiothoracic organ donation and retrieval rates from donors after brain death in the UK, 1 April 2011 - 31 March 2012, by allocation zone

Allocation zone of donor hospital	Number of donors		Number of organs retrieved (used)				TOTAL retrieved (used)	
	DBD solid organ	Cardiothoracic	Hearts		Lungs			
Birmingham	103	46	30	(30)	61	(57)	**91**	**(87)**
Glasgow	53	12	6	(6)	18	(17)	**24**	**(23)**
Harefield	130	39	16	(16)	56	(54)	**72**	**(70)**
Manchester	80	34	17	(17)	41	(41)	**58**	**(58)**
Newcastle[1]	117	47	23	(23)	73	(68)	**96**	**(91)**
Papworth	169	57	44	(44)	75	(73)	**119**	**(117)**
TOTAL	**652**	**235**	**136**	**(136)**	**324**	**(310)**	**460**	**(446)**

[1] Newcastle transplant adult and paediatric patients

The rates per million population for cardiothoracic donors are shown in **Table 7.7** by donor country/Strategic Health Authority of residence. No adjustments have been made for potential demographic differences in populations. The overall cardiothoracic donor rate was 4.1 pmp in 2011-2012 and varied across the Strategic Health Authorities from 1.8 pmp to 6.9 pmp.

Table 7.7 Cardiothoracic donor rates for deceased donors in the UK, 1 April 2011 - 31 March 2012, by country/Strategic Health Authority[1]

Country/ Strategic Health Authority	Heart donors (pmp) DBD		Lung donors (pmp) DBD		Lung donors (pmp) DCD		Total (pmp)	
North East	8	(3.1)	15	(5.7)	1	(0.4)	18	(6.9)
North West	14	(2.0)	19	(2.7)	0	(0.0)	27	(3.9)
Yorkshire and The Humber	10	(1.9)	13	(2.5)	1	(0.2)	19	(3.6)
North of England	**32**	**(2.2)**	**47**	**(3.2)**	**2**	**(0.1)**	**64**	**(4.3)**
East Midlands	4	(0.9)	5	(1.1)	2	(0.4)	8	(1.8)
West Midlands	11	(2.0)	17	(3.1)	2	(0.4)	24	(4.4)
East of England	19	(3.3)	9	(1.5)	2	(0.3)	23	(3.9)
Midlands and East	**34**	**(2.2)**	**31**	**(2.0)**	**6**	**(0.4)**	**55**	**(3.5)**
London	**17**	**(2.2)**	**20**	**(2.6)**	**1**	**(0.1)**	**30**	**(3.8)**
South East Coast	11	(2.5)	18	(4.1)	1	(0.2)	22	(5.0)
South Central	3	(0.7)	9	(2.2)	0		10	(2.4)
South West	12	(2.3)	13	(2.5)	7	(1.3)	25	(4.7)
South of England	**26**	**(1.9)**	**40**	**(2.9)**	**8**	**(0.6)**	**57**	**(4.1)**
England	**109**	**(2.1)**	**138**	**(2.6)**	**17**	**(0.3)**	**206**	**(3.9)**
Isle of Man	**2**	**(25.0)**	**1**	**(12.5)**	**0**	**(0.0)**	**2**	**(25.0)**
Channel Islands	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Wales	**12**	**(4.0)**	**9**	**(3.0)**	**2**	**(0.7)**	**18**	**(6.0)**
Scotland	**7**	**(1.3)**	**12**	**(2.3)**	**2**	**(0.4)**	**16**	**(3.1)**
Northern Ireland	**6**	**(3.3)**	**10**	**(5.6)**	**1**	**(0.6)**	**15**	**(8.3)**
TOTAL	**136**	**(2.2)**	**170**	**(2.7)**	**22**	**(0.4)**	**257**	**(4.1)**

[1] Includes 5 donors where the hospital postcode was used in place of an unknown donor postcode

7.4 Transplants

The number of cardiothoracic transplants by recipient country/Strategic Health Authority of residence are shown in **Table 7.8**. No adjustments have been made for potential demographic differences in populations. The transplant rate ranged from 3.0 to 8.0 pmp across regions and overall was 5.0 pmp.

Table 7.8 Cardiothoracic transplant rates per million population (pmp) in the UK, 1 April 2011 - 31 March 2012, by country/Strategic Health Authority

Country/ Strategic Health Authority	Heart (pmp) DBD		Lungs (pmp) DBD		Lungs (pmp) DCD		Total (pmp)	
North East	9	(3.4)	12	(4.6)	0	(0.0)	21	(8.0)
North West	19	(2.7)	19	(2.7)	1	(0.1)	39	(5.6)
Yorkshire and The Humber	6	(1.1)	10	(1.9)	0	(0.0)	16	(3.0)
North of England	**34**	**(2.3)**	**41**	**(2.8)**	**1**	**(0.1)**	**76**	**(5.1)**
East Midlands	12	(2.7)	13	(2.9)	1	(0.2)	26	(5.8)
West Midlands	21	(3.8)	17	(3.1)	1	(0.2)	39	(7.1)
East of England	13	(2.2)	17	(2.9)	3	(0.5)	33	(5.7)
Midlands and East	**46**	**(2.9)**	**47**	**(3.0)**	**5**	**(0.3)**	**98**	**(6.2)**
London	**9**	**(1.1)**	**19**	**(2.4)**	**3**	**(0.4)**	**31**	**(4.0)**
South East Coast	7	(1.6)	14	(3.2)	1	(0.2)	22	(5.0)
South Central	7	(1.7)	4	(1.0)	2	(0.5)	13	(3.1)
South West	10	(1.9)	8	(1.5)	3	(0.6)	21	(4.0)
South of England	**24**	**(1.7)**	**26**	**(1.9)**	**6**	**(0.4)**	**56**	**(4.1)**
England	**113**	**(2.2)**	**133**	**(2.5)**	**15**	**(0.3)**	**261**	**(5.0)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**0**	**(0.0)**	**1**	**(6.7)**	**0**	**(0.0)**	**1**	**(6.7)**
Wales	**8**	**(2.7)**	**10**	**(3.3)**	**5**	**(1.7)**	**23**	**(7.6)**
Scotland	**13**	**(2.5)**	**8**	**(1.5)**	**0**	**(0.0)**	**21**	**(4.0)**
Northern Ireland	**4**	**(2.2)**	**3**	**(1.7)**	**0**	**(0.0)**	**7**	**(3.9)**
TOTAL[1]	**138**[2,3]	**(2.2)**	**155**	**(2.5)**	**20**	**(0.3)**	**313**	**(5.0)**

[1] Excludes 7 recipients who reside outside of the UK (2 DBD heart, 4 DBD lung, 1 DCD lung)
[2] Excludes 1 recipient where the postcode was unknown
[3] Includes 3 domino donor transplants

Table 7.9 shows cardiothoracic transplant activity for each centre. In 2011-2012, a total of 321 transplants were carried out, an increase of 6% on 2010-2011. Of these, 43% were deceased donor heart transplants. The 171 adult lung transplants include 21 (12%) from donors after circulatory death: 12 were performed by Harefield, 2 by Newcastle, 4 by Manchester and 3 by Papworth. Lung transplants include the small number of heart/lung transplants performed.

Table 7.9 Cardiothoracic transplants, 1 April 2011 - 31 March 2012 (2010-2011), by age group and centre

Transplant centre	Transplant type										TOTAL	
	Heart				Heart/ lung		Lung(s)					
	Non-urgent		Urgent				DBD		DCD			
Adult												
Birmingham	12	(12)	10	(9)	0	(0)	15	(11)	0	(0)	37	(32)
Glasgow	5	(5)	4	(4)	0	(0)	0	(0)	0	(0)	9	(9)
Great Ormond Street	1	(1)	0	(0)	0	(0)	1	(2)	0	(0)	2	(3)
Harefield	3	(3)	6	(6)	0	(0)	39	(47)	12	(11)	60	(67)
Manchester	6	(5)	12	(7)	0	(0)	22	(20)	4	(1)	44	(33)
Newcastle	8	(6)	9	(10)	0	(1)	43	(36)	2	(7)	62	(60)
Papworth	12	(9)	20	(15)	5	(2)	30	(27)	3	(3)	70	(56)
TOTAL	**47**[1]	**(41)**	**61**	**(51)**	**5**	**(3)**	**150**	**(143)**	**21**	**(22)**	**284**	**(260)**
Paediatric												
Great Ormond Street	5	(2)	13	(16)	0	(0)	3	(3)	0	(0)	21	(21)
Newcastle	1	(4)	14	(17)	0	(0)	1	(1)	0	(0)	16	(22)
TOTAL	**6**	**(6)**	**27**	**(33)**	**0**	**(0)**	**4**	**(4)**	**0**	**(0)**	**37**	**(43)**

Paediatric recipients are aged under 16 years at time of transplant
[1] Includes 3 domino donor transplants

There were 61 adult urgent heart transplants in 2011-2012, representing 56% of all adult heart transplants (53% in 2010-2011). There were 27 paediatric urgent heart transplants in 2011-2012, representing 82% of all paediatric heart transplants (85% in 2010-2011). A small number of hearts and lungs were imported from outside the UK for transplantation in the UK: 4 hearts from the Republic of Ireland (ROI) and 7 from elsewhere, 1 lung from ROI.

The length of time that elapses between cardiothoracic organs being removed from the donor to its transplantation into the recipient is called the Cold Ischaemia Time (CIT). Generally, the shorter this time, the more likely the organ is to work immediately and the better the long-term outcome. The median CIT for a heart transplant is 3.0 hours (Inter-Quartile (IQ) range 2.5 – 3.6). The median CIT for a DBD donor lung transplant is 4.9 hours (IQ range 4.0 – 5.8) and for a DCD donor lung transplant is 5.7 hours (IQ range 4.6 – 7.2) and overall is 5.1 hours (IQ range 4.2 – 6.0).

At 31 March 2012 there were approximately 3,700 recipients with a functioning cardiothoracic organ transplant being followed-up as reported to the UK Transplant Registry.

7.5 Demographic characteristics

The age group, sex, ethnicity and blood group of deceased donors, transplant recipients and patients on the transplant list is shown in **Table 7.10**.

Table 7.10 Demographic characteristics of cardiothoracic donors and transplant recipients, 1 April 2011 - 31 March 2012, and transplant list patients at 31 March in the UK

	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
Age group (years)						
0 - 17	17	(7)	43	(13)	36	(9)
18 - 34	66	(25)	59	(18)	86	(21)
35 - 49	92	(35)	74	(23)	101	(25)
50 - 59	71	(27)	88	(27)	119	(30)
60 - 69	14	(5)	57	(18)	59	(15)
Mean (SD)	40	(15)	42	(18)	42	(17)
Sex						
Male	117	(45)	179	(56)	225	(56)
Female	143	(55)	142	(44)	176	(44)
Ethnicity						
White	241	(93)	299	(93)	371	(93)
Asian	5	(2)	15	(5)	15	(4)
Black	4	(2)	4	(1)	8	(2)
Chinese	2	(1)	0	(0)	2	(0)
Other	6	(2)	3	(1)	5	(1)
Not reported	2					
Blood group						
O	132	(51)	143	(45)	234	(58)
A	90	(35)	116	(36)	122	(30)
B	31	(12)	46	(14)	36	(9)
AB	7	(3)	16	(5)	9	(2)
TOTAL	**260**[1]	**(100)**	**321**[2]	**(100)**	**401**	**(100)**

[1] Includes 3 domino heart donors
[2] Includes 3 domino donor transplants

Liver Activity

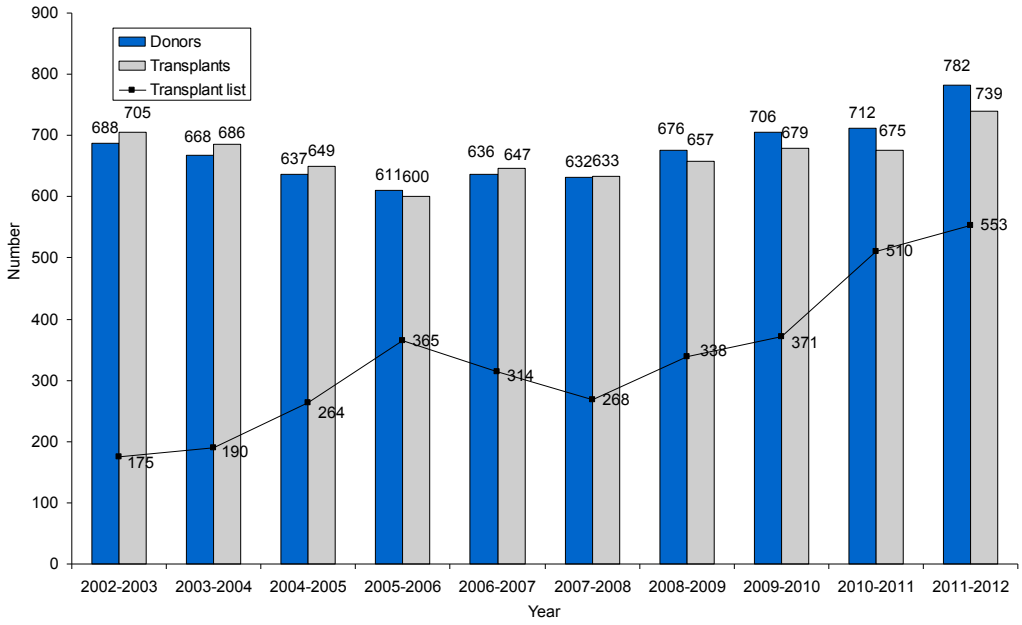
Key messages

- **The number of patients on the active liver transplant list at 31 March 2012 was 553, an increase of 8% from 2011**
- **The number of liver donors after brain death increased by 7% to 604, while transplants from donors after brain death increased by 6% to 607**
- **The number of liver donors after circulatory death increased by 23% to 178, while transplants from donors after circulatory death increased by 32% to 132**

8.1 Overview

The number of deceased liver donors and transplants in the UK in the last ten years is shown in **Figure 8.1**. Over this period, there has been a steady increase in the number of patients registered on the active transplant list at 31 March and a recent increase in the numbers of donors and transplants.

Figure 8.1 Deceased donor liver programme in the UK, 1 April 2002 - 31 March 2012
Number of donors, transplants and patients on the active transplant list at 31 March



Intestinal transplants that used a liver are not included in the liver transplant activity reported. However, any livers retrieved and used for such transplants are included in the liver donor activity. Intestinal transplant activity is reported in Chapter 9.

The number of deceased donors, deceased and living donor transplants, and patients on the active transplant list, by centre, is shown in **Table 8.1**. The numbers of liver donors reflect the number of organs retrieved from within each zone (by any retrieval team) rather than the number of retrievals made by that centre. In 2011-2012, 782 solid organ donors donated their liver for transplant: 604 donors after brain death and 178 donors after circulatory death. There were 553 patients on the active transplant list at 31 March 2012, an increase of 8% from 2011.

Overall, the number of liver transplants from donors after brain death increased by 6% to 607, and the number of transplants from donors after circulatory death increased by 32% to 132, compared with the previous financial year. Additionally, there were 38 living liver lobe donor transplants in NHS Group 1 (25) and Group 2 (13) paediatric and adult recipients, and 5 domino donor transplants in NHS Group 1 paediatric and adult recipients. There were 81 adult super-urgent transplants in 2011-2012, representing 12% of all deceased donor adult transplants. There were 16 paediatric super-urgent transplants in 2011-2012, representing 20% of all deceased donor paediatric transplants.

Patients are prioritised as super-urgent if they require a new liver as soon as possible due to rapid failure of the native organ. Other patients are referred to as elective.

Table 8.1 Deceased and living liver donors and transplants, 1 April 2011 - 31 March 2012 (2010-2011) and transplant list patients at 31 March 2012 (2011) in the UK, by age group and centre

Allocation zone/transplant centre	Deceased donors						Deceased transplants						Living donor transplants		Active transplant list	
	DBD		DCD		**TOTAL**		DBD		DCD		**TOTAL**					
Adult																
Birmingham	115	(119)	55	(38)	170	(157)	114	(115)	33	(28)	147	(143)	1	(1)	118	(75)
Cambridge	91	(77)	20	(20)	111	(97)	65	(61)	21	(15)	86	(76)	0	(0)	43	(61)
Edinburgh	85	(60)	14	(10)	99	(70)	86	(71)	9	(9)	95	(80)	1	(1)	55	(46)
King's College	134	(115)	53	(49)	187	(164)	113	(96)	44	(31)	157	(127)	9	(6)	123	(143)
Leeds	76	(98)	17	(13)	93	(111)	68	(73)	7	(9)	75	(82)	3	(3)	87	(75)
Newcastle	34	(26)	5	(3)	39	(29)	36	(32)	3	(3)	39	(35)	0	(0)	33	(35)
Royal Free	51	(48)	11	(7)	62	(55)	49	(43)	11	(3)	60	(46)	3	(1)	54	(43)
TOTAL	**586**	**(543)**	**175**	**(140)**	**761**	**(683)**	**531**	**(491)**	**128**	**(98)**	**659**	**(589)**	**17**[1]	**(12)**[2]	**513**	**(478)**
Paediatric																
Birmingham	1	(2)	0	(1)	1	(3)	26	(35)	1	(1)	27	(36)	2	(1)	15	(7)
Cambridge	2	(3)	0	(1)	2	(4)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Edinburgh	4	(6)	1	(1)	5	(7)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
King's College	7	(5)	2	(0)	9	(5)	37	(35)	3	(1)	40	(36)	17	(10)	15	(20)
Leeds	4	(2)	0	(2)	4	(4)	13	(14)	0	(0)	13	(14)	7	(2)	10	(5)
Newcastle	0	(4)	0	(0)	0	(4)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Royal Free	0	(2)	0	(0)	0	(2)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	**18**	**(24)**	**3**	**(5)**	**21**	**(29)**	**76**	**(84)**	**4**	**(2)**	**80**	**(86)**	**26**[3]	**(13)**[4]	**40**	**(32)**

[1] Includes 7 and 6 living liver lobe transplants, and 4 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively
[2] Includes 3 and 5 living liver lobe transplants, and 4 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively
[3] Includes 18 and 7 living liver lobe transplants, and 1 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively
[4] Includes 11 and 2 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

8.2 Transplant list

During 2011-2012, 1,105 patients joined the liver transplant list. Outcomes for patients on the list at 1 April 2011 and those joining the list during the year are shown in **Table 8.2**.

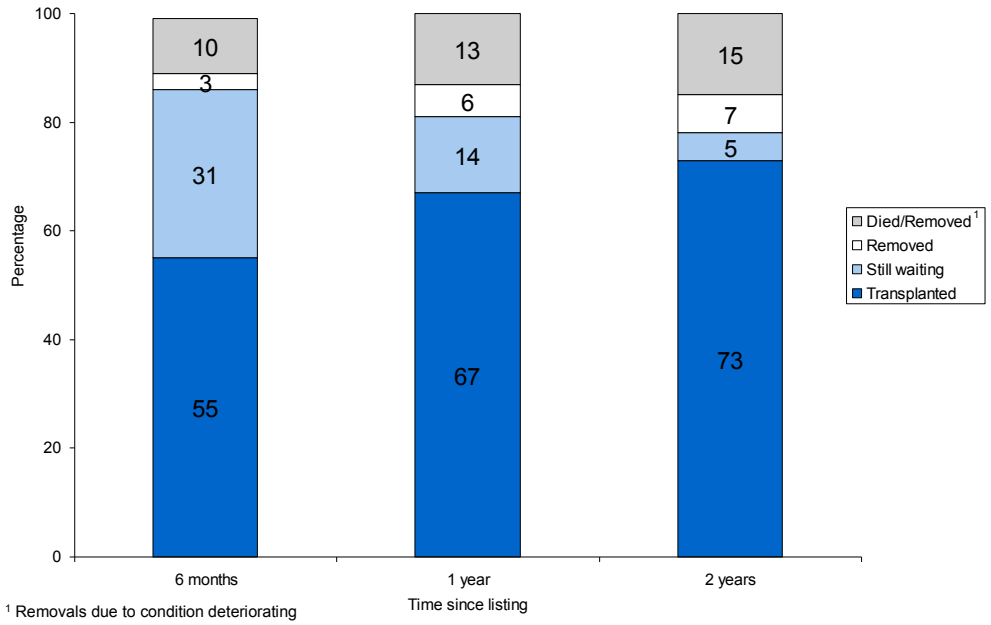
Table 8.2 Liver transplant list and new registrations in the UK, 1 April 2011 – 31 March 2012

Outcome of patient at 31 March 2012	Active and suspended patients at 1 April 2011		New registrations in 2011-2012[1]		TOTAL	
	N	%	N	%	**N**	**%**
Remained active/suspended	137	26	433	39	**570**	**35**
Transplanted	261	50	530	48	**791**	**49**
Removed	86	16	75	7	**161**	**10**
Died	38	7	67	6	**105**	**6**
TOTAL	**522**		**1105**		**1627**	

[1] Includes re-registrations for second or subsequent transplants

An indication of longer term outcomes for patients listed for a liver transplant is summarised in **Figure 8.2**. This shows the proportion of patients transplanted or still waiting six months, one year and two years after joining the transplant list. It also shows the proportion removed from the transplant list and those dying while on the transplant list (which includes those patients removed due to deterioration of condition). At one year post-registration, 67% of patients had received a liver transplant while 13% of patients had either died whilst waiting or had been removed due to their condition deteriorating. 6% had been removed for other reasons such as the patient's condition improving, as a result of non-compliance or at the request of the patient or family.

Figure 8.2 Post-registration outcome for 891 new elective liver only registrations made in the UK, 1 April 2008 - 31 March 2009



[1] Removals due to condition deteriorating

Tables 8.3 and **8.4** show the median waiting time to liver transplant for adult and paediatric elective registrations, separately, including a breakdown by blood group and ethnicity for adult elective registrations only. On average, adult patients wait 142 days for a liver transplant while paediatric patients wait an average of 78 days. Note that these waiting times are not adjusted for other relevant factors which may be influential and which may differ across blood or ethnic groups.

Table 8.3 Median waiting time to liver transplant in the UK, for patients registered 1 April 2007 - 31 March 2010

Blood group	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
O	1104	184	164 - 204
A	900	93	83 - 103
B	316	274	214 - 334
AB	106	76	51 - 101
TOTAL	**2426**	**142**	**132 - 152**
Paediatric	**187**	**78**	**60 - 96**

Table 8.4 Median waiting time to liver transplant in the UK, for patients registered 1 April 2007 - 31 March 2010

Ethnicity	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
White	2083	140	130 - 150
Asian	216	143	103 - 183
Black	60	146	69 - 223
Other	63	185	119 - 251
TOTAL	**2426**[1]	**142**	**132 - 152**
Paediatric	**187**	**78**	**60 - 96**

[1] Includes 4 patients with ethnicity not reported

8.3 Donor and organ supply

Of the 1,088 organ donors, 782 (72%) donated their liver and 689 (88%) of these donated livers were transplanted; see **Table 8.5**. Of livers retrieved from donors after brain death and donors after circulatory death, 92% and 74% were transplanted, respectively.

Table 8.5 Deceased liver retrieval rates in the UK, 1 April 2011 - 31 March 2012, by allocation zone

Allocation zone of donor hospital	Number of donors						Number of livers retrieved (used)					
	All organ donors			Liver donors								
	DBD	DCD	**TOTAL**	DBD	DCD	**TOTAL**	DBD		DCD		**TOTAL**	
Birmingham	125	121	**246**	116	55	**171**	116	(109)	55	(39)	**171**	**(148)**
Cambridge	97	67	**164**	93	20	**113**	93	(86)	20	(14)	**113**	**(100)**
Edinburgh	100	40	**140**	89	15	**104**	89	(86)	15	(13)	**104**	**(99)**
King's College	146	95	**241**	141	55	**196**	141	(122)	55	(39)	**196**	**(161)**
Leeds	92	68	**160**	80	17	**97**	80	(74)	17	(14)	**97**	**(88)**
Newcastle	40	28	**68**	34	5	**39**	34	(33)	5	(5)	**39**	**(38)**
Royal Free	52	17	**69**	51	11	**62**	51	(47)	11	(8)	**62**	**(55)**
TOTAL	**652**	**436**	**1088**	**604**	**178**	**782**	**604**	**(557)**	**178**	**(132)**	**782**	**(689)**

The rates per million population (pmp) for liver donors are shown in **Table 8.6** by donor country/Strategic Health Authority of residence. No adjustments have been made for potential demographic differences in populations. The overall deceased liver donor rate was 12.5 pmp in 2011-2012 and varied across the Strategic Health Authorities from 8.3 pmp to 15.7 pmp.

Table 8.6 Liver donation and retrieval rates in the UK, 1 April 2011 - 31 March 2012, by country/Strategic Health Authority[1]

Country/ Strategic Health Authority	Deceased donors (pmp) DBD		DCD		Total	
North East	35	(13.4)	6	(2.3)	**41**	**(15.7)**
North West	56	(8.1)	12	(1.7)	**68**	**(9.8)**
Yorkshire and The Humber	40	(7.5)	7	(1.3)	**47**	**(8.9)**
North of England	**131**	**(8.8)**	**25**	**(1.7)**	**156**	**(10.5)**
East Midlands	28	(6.3)	9	(2.0)	**37**	**(8.3)**
West Midlands	45	(8.2)	16	(2.9)	**61**	**(11.2)**
East of England	66	(11.3)	15	(2.6)	**81**	**(13.9)**
Midlands and East	**139**	**(8.8)**	**40**	**(2.5)**	**179**	**(11.4)**
London	**72**	**(9.2)**	**20**	**(2.6)**	**92**	**(11.7)**
South East Coast	51	(11.6)	12	(2.7)	**63**	**(14.4)**
South Central	47	(11.4)	12	(2.9)	**59**	**(14.3)**
South West	43	(8.2)	37	(7.0)	**80**	**(15.2)**
South of England	**141**	**(10.2)**	**61**	**(4.4)**	**202**	**(14.6)**
England	**483**	**(9.2)**	**146**	**(2.8)**	**629**	**(12.0)**
Isle of Man	**2**	**(25.0)**	**0**	**(0.0)**	**2**	**(25.0)**
Channel Islands	**2**	**(13.3)**	**0**	**(0.0)**	**2**	**(13.3)**
Wales	**36**	**(12.0)**	**17**	**(5.6)**	**53**	**(17.6)**
Scotland	**49**	**(9.4)**	**13**	**(2.5)**	**62**	**(11.9)**
Northern Ireland	**32**	**(17.8)**	**2**	**(1.1)**	**34**	**(18.9)**
TOTAL	**604**	**(9.7)**	**178**	**(2.8)**	**782**	**(12.5)**

[1] Includes 47 donors where the hospital postcode was used in place of an unknown donor postcode

8.4 Transplants

The number of liver transplants by recipient country/Strategic Health Authority of residence are shown in **Table 8.7**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 6.7 to 14.2 pmp across the Strategic Health Authorities and overall was 11.5 pmp.

The number of whole, reduced and split liver transplants by urgency status of the transplant (elective, super-urgent) in 2011-2012 is shown in **Table 8.8**. The term 'reduced' is used when only one lobe of the liver is transplanted and the term 'split' applies when both lobes of the liver are transplanted into two different recipients.

Overall, the number of deceased donor liver transplants increased by 9% in 2011-2012. There were 739 deceased donor liver transplants performed in 2011-2012: 623 whole liver, including 13 liver and kidney; and 116 deceased donor liver lobe, including 5 liver and kidney. Split liver transplants accounted for 88% of liver lobe transplant activity.

Table 8.7 Liver transplant rates per million population (pmp) in the UK, 1 April 2011 - 31 March 2012, by country/Strategic Health Authority

Country/ Strategic Health Authority	Deceased transplants (pmp)						Living transplants (pmp)	
	DBD		DCD		**Total**			
North East	32	(12.3)	3	(1.1)	**35**	**(13.4)**	0	(0.0)
North West	48	(6.9)	8	(1.2)	**56**	**(8.1)**	5	(0.7)
Yorkshire and The Humber	52	(9.8)	4	(0.8)	**56**	**(10.6)**	3	(0.6)
North of England	**132**	**(8.9)**	**15**	**(1.0)**	**147**	**(9.9)**	**8**	**(0.5)**
East Midlands	26	(5.8)	4	(0.9)	**30**	**(6.7)**	1	(0.2)
West Midlands	54	(9.9)	14	(2.6)	**68**	**(12.5)**	0	(0.0)
East of England	46	(7.9)	17	(2.9)	**63**	**(10.8)**	2	(0.3)
Midlands and East	**126**	**(8.0)**	**35**	**(2.2)**	**161**	**(10.2)**	**3**	**(0.2)**
London	**88**	**(11.2)**	**23**	**(2.9)**	**111**	**(14.2)**	**7**	**(0.9)**
South East Coast	24	(5.5)	12	(2.7)	**36**	**(8.2)**	1	(0.2)
South Central	39	(9.4)	10	(2.4)	**49**	**(11.8)**	0	(0.0)
South West	43	(8.2)	15	(2.8)	**58**	**(11.0)**	2	(0.4)
South of England	**106**	**(7.7)**	**37**	**(2.7)**	**143**	**(10.4)**	**3**	**(0.2)**
England	**452**	**(8.7)**	**110**	**(2.1)**	**562**	**(10.8)**	**21**	**(0.4)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**1**	**(6.7)**	**0**	**(0.0)**	**1**	**(6.7)**	**0**	**(0.0)**
Wales	**21**	**(7.0)**	**7**	**(2.3)**	**28**	**(9.3)**	**1**	**(0.3)**
Scotland	**89**	**(17.0)**	**9**	**(1.7)**	**98**	**(18.8)**	**2**	**(0.4)**
Northern Ireland	**25**	**(13.9)**	**3**	**(1.7)**	**28**	**(15.6)**	**0**	**(0.0)**
TOTAL[1]	**588**	**(9.4)**	**129**	**(2.1)**	**717**	**(11.5)**	**24**	**(0.4)**

[1] Excludes 41 recipients who reside outside of the UK (19 DBD, 3 DCD, 19 living)

Table 8.8 Deceased donor liver transplants performed in the UK, 1 April 2010 - 31 March 2012

Transplant centre	2010 - 2011								2011 - 2012							
	Whole liver		Reduced liver		Split liver		TOTAL		Whole liver		Reduced liver		Split liver		TOTAL	
	E	SU	E	SU	E	SU	E	SU	E	SU	E	SU	E	SU	E	SU
Birmingham	104	23	2	4	40	6	**146**	**33**	115	21	1	0	36	1	**152**	**22**
Cambridge	69	4	0	0	3	0	**72**	**4**	69	12	0	0	5	0	**74**	**12**
Edinburgh	63	9	0	0	8	0	**71**	**9**	76	11	0	0	8	0	**84**	**11**
King's College	103	22	6	5	25	2	**134**	**29**	134	19	5	6	31	2	**170**	**27**
Leeds	73	7	3	3	10	0	**86**	**10**	64	9	0	2	10	3	**74**	**14**
Newcastle	26	7	0	0	2	0	**28**	**7**	32	4	0	0	3	0	**35**	**4**
Royal Free	36	5	0	0	5	0	**41**	**5**	50	7	0	0	3	0	**53**	**7**
TOTAL	**474**	**77**	**11**	**12**	**93**	**8**	578	97	540	83	6	8	96	6	642	97

E=Elective, SU=Super-urgent
Birmingham, King's College and Leeds transplant paediatric patients

The length of time that elapses between a liver being removed from the donor to its transplantation into the recipient is called the Cold Ischaemia Time (CIT). Generally, the shorter this time, the more likely the liver is to work immediately and the better the long-term outcome. The median CIT for a DBD donor transplant is 8.9 hours (Inter-Quartile (IQ) range 7.2 – 10.8) and for a DCD donor transplant is 7.2 hours (IQ range 6.3 – 8.2) and overall is 8.5 hours (IQ range 6.9 – 10.5).

At 31 March 2012 there were approximately 8,900 recipients with a functioning liver transplant (or multi-organ transplants including the liver) being followed-up as reported to the UK Transplant Registry.

8.5 Demographic characteristics

The age group, sex, ethnicity and blood group of liver donors, transplant recipients and transplant list patients is shown in **Table 8.9**.

Table 8.9 Demographic characteristics of deceased liver donors and transplant recipients 1 April 2011 - 31 March 2012, and transplant list patients at 31 March in the UK

	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
Age group (years)						
0 - 17	32	(4)	85	(12)	42	(8)
18 - 34	124	(16)	83	(11)	48	(9)
35 - 49	194	(25)	156	(21)	128	(23)
50 - 59	206	(26)	215	(29)	200	(36)
60 - 69	163	(21)	189	(26)	130	(24)
70+	63	(8)	11	(1)	5	(1)
Mean (SD)	49	(17)	46	(19)	48	(16)
Sex						
Male	378	(48)	454	(61)	344	(62)
Female	404	(52)	285	(39)	209	(38)
Ethnicity						
White	743	(95)	630	(85)	460	(83)
Asian	14	(2)	66	(9)	58	(10)
Black	11	(1)	23	(3)	15	(3)
Chinese	1	(0)	6	(1)	3	(1)
Other	13	(2)	12	(2)	17	(3)
Not reported		-	2	(0)		-
Blood group						
O	360	(46)	295	(40)	298	(54)
A	306	(39)	298	(40)	160	(29)
B	84	(11)	98	(13)	83	(15)
AB	32	(4)	48	(6)	12	(2)
TOTAL	**782**	**(100)**	**739**	**(100)**	**553**	**(100)**

Intestinal Activity

Key messages

- **28 patients were registered for an intestinal transplant last year (18 adults, 10 paediatric patients)**
- **22 intestinal transplants were carried out this year (19 last year)**
- **On average, patients wait six months for transplant**

9.1 Overview

Over the last two years (between 1 April 2010 and 31 March 2012), the number of intestinal transplants has remained similar with 19 transplants carried out in 2010-2011 compared to 22 in 2011-2012.

During 2011-2012, there were 28 registrations for an intestinal transplant. As at 31 March 2012, 12 (43%) registrations remained active/suspended, 13 (46%) resulted in a transplant, 2 (7%) and 1 (4%) resulted in a death on, and removal from, the transplant list, respectively.

9.2 Transplant list

In 2011-2012, there were 28 registrations for an intestinal transplant. The outcome of these registrations for paediatric and adult patients, as at 31 March 2012, broken down by transplant centre can be found in **Table 9.1**.

Table 9.1 Outcome of intestinal registrations in the UK, 1 April 2011 and 13 March 2012

Transplant centre	Outcome of registrations as at 31 March 2012								TOTAL
	Transplanted		Died		Removed		Active/Susp		
	N	%	N	%	N	%	N	%	
Adult									
Cambridge	7	50	1	7	0	0	6	43	14
Oxford	3	75	0	0	0	0	1	25	4
TOTAL	**10**	**56**	**1**	**6**	**0**	**0**	**7**	**39**	**18**
Paediatric									
Birmingham	3	38	1	13	1	13	3	38	8
King's College	0	0	0	0	0	0	2	100	2
TOTAL	**3**	**30**	**1**	**10**	**1**	**10**	**5**	**50**	**10**

Table 9.2 shows median waiting time to intestinal transplant by registration type. On average, patients wait 180 days for a transplant.

Table 9.2 Median waiting time to intestinal transplant in the UK, for patients registered 1 April 2008 - 31 March 2011

Registration type	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Bowel only	29	195	128 – 262
Including a liver	27	144	17 – 271
Not including a liver	22	140	0 – 383
TOTAL	**78**	**180**	**128 – 232**

9.3 Transplants

Table 9.3 shows intestinal transplant activity by transplant centre and transplant type for financial years 2010-2011 and 2011-2012. In 2011-2012, there were a total of 22 transplants, 14 adult and 8 paediatric transplants.

Table 9.3 Intestinal failure transplants in the UK, 1 April 2011 - 31 March 2012 (2010-2011), by age group, centre and type

Transplant centre	Transplant type LO		BO		LBP		MV		MMV		**TOTAL**	
Adult												
Cambridge	0	(0)	1	(2)	1	(0)	6	(2)	1	(2)	9	(6)
Oxford	0	(0)	5	(2)	0	(0)	0	(0)	0	(0)	5	(2)
TOTAL	**0**	**(0)**	**6**	**(4)**	**1**	**(0)**	**6**	**(2)**	**1**	**(2)**	**14**	**(8)**
Paediatric												
Birmingham	0	(1)	4	(4)	2	(2)	0	(0)	0	(1)	6	(8)
King's College	0	(0)	2	(3)	0	(0)	0	(0)	0	(0)	2	(3)
TOTAL	**0**	**(1)**	**6**	**(7)**	**2**	**(2)**	**0**	**(0)**	**0**	**(1)**	**8**	**(11)**

LO = Liver only - liver or part thereof
BO = Bowel only (with or without large bowel)
LBP = Liver, bowel and pancreas - liver or part thereof, small bowel (with or without large bowel), pancreas
MV = Multivisceral - liver or part thereof, small bowel (with or without large bowel), pancreas, stomach and/or spleen and/or abdominal wall and/or kidney and/or heart and/or lung
MMV = Modified multivisceral - small bowel (with or without large bowel), pancreas, stomach and/or spleen and/or abdominal wall and/or kidney and/or heart and/or lung

Cornea Activity

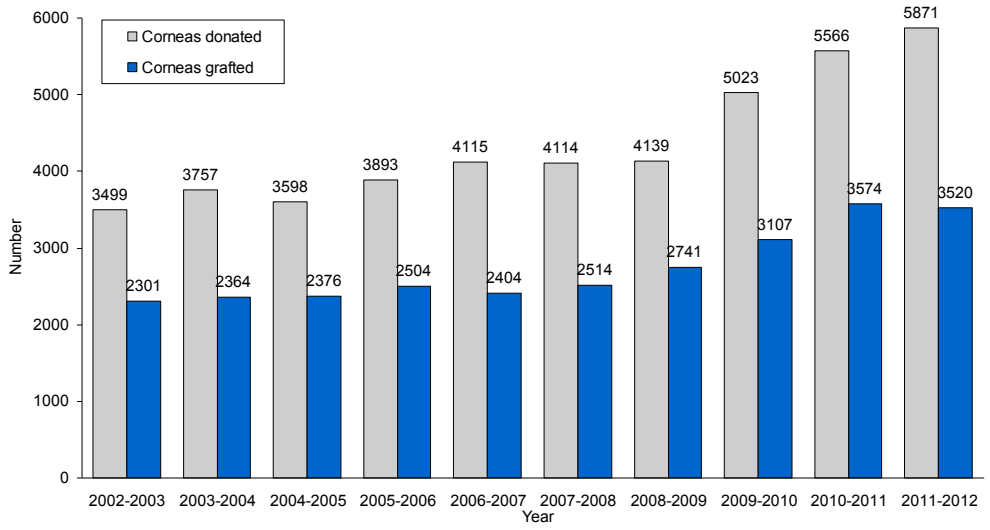
Key messages

- **5,446 were supplied to the Corneal Transplant Service (CTS) eye banks, representing a 7% increase over last year**
- **There was a 2% fall in the number of transplants to 3,520**
- **Corneas were retrieved from 34% of organ donors after brain death and 32% of organ donors after circulatory death**
- **34% of cornea only donors were 80 years of age or over**

10.1 Overview

The number of corneas donated in 2011-2012 was 5,871, representing an increase of 5% on last year, as shown in **Figure 10.1**. This increase is mainly due to the Eye Retrieval Scheme (ERS) but also due to the fact that more corneas are being donated from organ donors. The ERS consists of 10 teams embedded in the selected trusts/boards across the UK, that are funded by NHSBT for the purpose of promoting, procuring and retrieving ocular tissue for the clinical use. Additionally, 281 sclera were issued and used. **It should be noted that not all cornea donors and transplants in the UK are reported to the UK Transplant Registry and thus the data reported are not the full national data**.

Figure 10.1 Cornea programme in the UK, 1 April 2002 - 31 March 2012
Number of corneas donated and corneas grafted



In 2011-2012 there were 2,976 tissue donors, of whom 2,617 donated corneas only and 359 donated corneas and solid organs: see **Table 10.1**. Compared to 2010-2011, the number of cornea only donors increased by 143, and the number of cornea and solid organ donors increased by 21. In 2011-2012, corneas were retrieved from 34% of organ donors after brain death compared with 31% in 2010-2011. Of the 436 organ donors after circulatory death in 2011-2012, 138 (32%) also donated corneas.

Table 10.1 also shows the number and rate per million population (pmp) of donors in 2011-2012 by country and English Strategic Health Authority (SHA), with figures for 2010-2011 in parentheses. No adjustments have been made for potential demographic differences in populations. England had the highest cornea donor rate in the UK in 2011-2012 (50.1 pmp). In 2011-2012, the cornea donor rate increased in England and Northern Ireland but fell in Wales and Scotland. Across the SHAs the cornea donor rate varied markedly from 14.5 pmp to 101.7 pmp.

Table 10.1 Cornea donation rates per million population, pmp, in the UK, 1 April 2011 - 31 March 2012 (2010 - 2011), by country/Strategic Health Authority

Country of residence/ Strategic Health Authority	Cornea only		Solid organ and cornea		**TOTAL**		**TOTAL pmp**	
North East	191	(193)	22	(22)	213	(215)	81.6	(82.4)
North West	681	(580)	25	(32)	706	(612)	101.7	(88.2)
Yorkshire and The Humber	78	(103)	18	(20)	96	(123)	18.1	(23.2)
North of England	**950**	**(876)**	**65**	**(74)**	**1015**	**(950)**	**68.4**	**(64.0)**
East Midlands	214	(195)	18	(14)	232	(209)	51.8	(46.7)
West Midlands	53	(57)	26	(15)	79	(72)	14.5	(13.2)
East of England	151	(174)	36	(31)	187	(205)	32.1	(35.2)
Midlands and East	**418**	**(426)**	**80**	**(60)**	**498**	**(486)**	**31.6**	**(30.8)**
London	**155**	**(170)**	**59**	**(57)**	**214**	**(227)**	**27.3**	**(29.0)**
South East Coast	84	(49)	22	(19)	106	(68)	24.1	(15.5)
South Central	277	(205)	30	(27)	307	(232)	74.2	(56.0)
South West	438	(462)	37	(43)	475	(505)	90.1	(95.8)
South of England	**799**	**(716)**	**89**	**(89)**	**888**	**(805)**	**64.3**	**(58.3)**
England	**2322**	**(2188)**	**293**	**(280)**	**2615**	**(2468)**	**50.1**	**(47.3)**
Isle of Man	**0**	**(0)**	**0**	**(0)**	**0**	**(0)**	**0**	**(0.0)**
Channel Islands	**0**	**(0)**	**0**	**(0)**	**0**	**(0)**	**0**	**(0.0)**
Wales	**113**	**(120)**	**28**	**(24)**	**141**	**(144)**	**46.8**	**(47.8)**
Scotland	**137**	**(141)**	**21**	**(20)**	**158**	**(161)**	**30.3**	**(30.8)**
Northern Ireland	**44**	**(20)**	**16**	**(14)**	**60**	**(34)**	**33.3**	**(18.9)**
TOTAL[1]	**2617**	**(2474)**	**359**	**(338)**	**2976**	**(2812)**	**47.6**	**(45.0)**

[1] Includes UK recipients where the postcode was unspecified and non-UK recipients

10.2 Donor and tissue supply

In 2011-2012, 92.8% (91.6% in 2010-2011) of retrieved corneas reported to the UK Transplant Registry were supplied to the Corneal Transplant Service (CTS) Eye Banks in Bristol and Manchester. **Table 10.2** shows the number of corneas supplied to, and taken from, the CTS Eye Banks for those centres that supplied more than 25 corneas in 2011-2012. The difference between the number supplied and number taken is also shown, together with the number of corneas that were deemed suitable for a penetrating keratoplasty (PK). Centres with a negative balance have taken more corneas than they supplied to the CTS Eye Banks.

Table 10.2 Corneas supplied to and taken from the CTS Eye Banks, 1 April 2011 - 31 March 2012

Centre	Corneas supplied	Suitable for PK (%)		Corneas taken	Balance
ERS Merseyside	382	187	(49)	141	241
ERS Southampton	355	199	(56)	84	271
ERS Preston	328	191	(58)	14	314
ERS Bolton	324	198	(61)	22	302
ERS Bristol	321	190	(59)	100	221
ERS Nottingham	319	206	(65)	114	205
ERS Newcastle	314	213	(68)	45	269
ERS Royal Devon	295	158	(54)	16	279
ERS Norfolk	240	176	(73)	46	194
ERS Glasgow	187	146	(78)	123	64
East Grinstead, Queen Victoria Hospital	152	86	(57)	24	128
Manchester, Royal Eye Hospital	148	97	(66)	229	-81
Middlesbrough, James Cook University Hospital	106	74	(70)	9	97
Belfast, Royal Victoria Hospital	104	78	(75)	49	55
Oxford, John Radcliffe Hospital	104	67	(64)	33	71
Cardiff, University of Wales Hospital	84	46	(55)	17	67
Blackburn, Royal Infirmary	76	47	(62)	0	76
Leicester, Royal Infirmary	66	46	(70)	83	-17
Plymouth, Royal Eye Infirmary	60	41	(68)	27	33
Newport, Royal Gwent Hospital	56	33	(59)	7	49
Cambridge, Addenbrookes Hospital	50	41	(82)	66	-16
Yeovil District Hospital	46	31	(67)	0	46
Taunton, Taunton & Somerset Hospital	42	26	(62)	11	31
Birmingham, Birmingham & Midland Eye Centre	40	24	(60)	108	-68
Portsmouth, Queen Alexandra Hospital	36	21	(58)	25	11
Dundee, Ninewells Hospital	36	29	(81)	0	36
Lancaster, Royal Lancaster Hospital	35	28	(80)	0	35
Swindon, Great Western Hospital	32	23	(72)	3	29
Edinburgh, Royal Infirmary	32	24	(75)	0	32
Stoke, North Staffordshire Royal Infirmary	28	19	(68)	20	8
Southend Hospital	26	16	(62)	63	-37
Reading, Royal Berkshire Hospital	26	18	(69)	43	-17
Barnstaple, North Devon District Hospital	26	11	(42)	3	23
Coventry & Warwickshire Hospital	26	15	(58)	23	3
Eye retrieval scheme centres	**3065**	**1864**	**(61)**	**705**	**2360**
Centres supplying more than 25 corneas	**1437**	**941**	**(65)**	**843**	**594**
All other centres	**944**	**650**	**(69)**	**1797**	**-853**
TOTAL	**5446**	**3455**	**(63)**	**3345**	**2101**

ERS – Eye Retrieval Scheme
PK - Penetrating keratoplasty

Of the 5,446 corneas supplied to the CTS Eye Banks, 3,455 (63%) were suitable for a PK. This was a decrease compared with 2010-2011, when 66% of corneas supplied to the CTS Eye Banks were suitable for a PK.

10.3 CTS Eye Bank activity

The activity levels for the Bristol and Manchester Eye Banks are shown in **Table 10.3**. The numbers of corneas received by the CTS Eye Banks increased in 2011-2012 by 7%, however the number of corneas issued remained the same. In 2011-2012, 5,446 corneas were received into the CTS Eye Banks, of which 3,559 (65%) were subsequently issued for grafting. The remaining corneas were unsuitable for transplantation.

Table 10.3 Corneas received into the Bristol and Manchester Eye Banks, 1 April 2011 - 31 March 2012 (2010-2011), by year

	Total received		Number issued[1]		% issued		Difference between number received and issued	
Bristol	2363	(2266)	1512	(1475)	64	(65)	851	(791)
Manchester	3083	(2824)	2047	(2084)	66	(74)	1036	(740)
Total	**5446**	**(5090)**	**3559**	**(3559)**	**65**	**(70)**	**1887**	**(1531)**

[1] Number issued of those received in each year

The outcome of corneas received into the CTS Eye Banks is given in **Table 10.4**. Of the corneas supplied to the Eye Banks in 2011-2012, 61% were issued and used and 4% were issued but not used. Of the corneas supplied to the Eye Banks, 11% were unsuitable because of medication contraindications, 14% were unsuitable due to tissue quality and 5% were discarded because of bacterial or fungal contamination. 4% of corneas became outdated, that is, they exceeded 28 days storage and some of these (30%) were placed in ethanol where they can subsequently be stored for up to one year and used for glaucoma surgery. Corneas that were unsuitable for transplantation were, where possible, used for research when permission had been given by the relatives.

10.4 Transplants

Corneal transplant activity by country of residence and Strategic Health Authority in England for the years 2010-2011 and 2011-2012 is detailed in **Table 10.5** for corneas supplied through the CTS Eye Banks and transplants that have been reported to the UK Transplant Registry by Moorfields Eye Bank. Corneas from East Grinstead Eye Bank will be reported to the UK Transplant Registry during 2012-2013. No adjustments have been made for potential demographic differences in populations. The overall transplant rate was 57.2 pmp in 2010-2011; this decreased to 56.3 pmp in 2011-2012. The transplant rates increased in England, but fell in Wales, Scotland and Northern Ireland. England had the highest transplant rate in the UK: 59.3 pmp, this ranged from 41.4 pmp to 78.3 pmp across the SHAs.

Table 10.4 Outcome of corneas received into the Bristol and Manchester Eye Banks, 1 April 2011 - 31 March 2012 (2010 - 2011), by year

Outcome of cornea	Bristol				Manchester				TOTAL			
	N		%		N		%		N		%	
Total used	**1416**	**(1372)**	**60**	**(61)**	**1909**	**(1924)**	**62**	**(68)**	**3325**	**(3296)**	**61**	**(65)**
Not used												
Issued, not used	96	(103)	4	(5)	138	(160)	4	(6)	234	(263)	4	(5)
Unsuitable – tissue quality	434	(350)	18	(15)	341	(268)	11	(9)	775	(618)	14	(12)
Medical reason – virology[1]	79	(172)	3	(8)	148	(141)	5	(5)	227	(313)	4	(6)
Medical reason – other[2]	202	(178)	9	(8)	206	(195)	7	(7)	408	(373)	7	(7)
Contaminated	120	(84)	5	(4)	151	(130)	5	(5)	271	(214)	5	(4)
Other/not reported	16	(7)	1	(<1)	190	(6)	6	(<1)	206	(13)	4	(<1)
Total not used	**947**	**(894)**	**40**	**(39)**	**1174**	**(900)**	**38**	**(32)**	**2121**	**(1794)**	**39**	**(35)**
TOTAL	**2363**	**(2266)**			**3083**	**(2824)**			**5446**	**(5090)**		

[1] Positive or missing serology tests
[2] Other medical contraindications

Table 10.5 Cornea transplants[1] performed per million population (pmp) in the UK, 1 April 2010 - 31 March 2012, by country/Strategic Health Authority

Country of residence/ Strategic Health Authority	Number of transplants (pmp)			
	2010-2011		2011-2012	
North East	143	(54.8)	108	(41.4)
North West	518	(74.6)	514	(74.1)
Yorkshire and The Humber	365	(68.9)	415	(78.3)
North of England	**1026**	**(69.1)**	**1037**	**(69.8)**
East Midlands	244	(54.5)	254	(56.7)
West Midlands	330	(60.4)	323	(59.2)
East of England	297	(50.9)	336	(57.6)
Midlands and East	**871**	**(55.2)**	**913**	**(57.9)**
London	**371**	**(47.4)**	**430**	**(54.9)**
South East Coast	240	(54.7)	246	(56.0)
South Central	217	(52.4)	245	(59.2)
South West	271	(51.4)	225	(42.7)
South of England	**728**	**(52.8)**	**716**	**(51.9)**
England	**2996**	**(57.4)**	**3096**	**(59.3)**
Isle of Man	**4**	**(50)**	**1**	**(12.5)**
Channel Islands	**6**	**(40)**	**4**	**(26.7)**
Wales	**155**	**(51.5)**	**97**	**(32.2)**
Scotland	**232**	**(44.4)**	**197**	**(37.7)**
Northern Ireland	**95**	**(52.8)**	**85**	**(47.2)**
TOTAL	**3573**	**(57.2)**	**3521**	**(56.3)**

[1] Corneas supplied through the CTS Eye Banks and Moorfields Eye Bank
[2] Includes UK recipients where the postcode was unspecified and non-UK recipients

10.5 Demographic characteristics

The age group, sex and ethnicity of cornea donors and transplant recipients is shown in **Table 10.6**. Of the 2,617 cornea only donors, 34% were aged ≥80 years compared with 31% last year.

Table 10.6 Demographic characteristics of deceased cornea donors and transplant recipients, 1 April 2011 - 31 March 2012, in the UK

	Cornea only donors		Solid organ and cornea donors		Transplant recipients	
	N	(%)	N	(%)	N	(%)
Age group (years)						
0 - 17	16	(1)	10	(3)	67	(2)
18 - 34	56	(2)	30	(8)	520	(15)
35 - 49	163	(6)	70	(19)	497	(14)
50 - 59	238	(9)	91	(25)	345	(10)
60 - 69	540	(21)	103	(29)	590	(17)
70-79	716	(27)	49	(14)	834	(24)
80+	888	(34)	6	(2)	668	(19)
Mean (SD)	71	(15)	55	(16)	60	(21)
Sex						
Male	1553	(59)	166	(46)	1878	(53)
Female	1063	(41)	193	(54)	1643	(47)
Not reported	1					
Ethnicity						
White	2472	(99)	332	(96)	2997	(86)
Asian	9	(0)	6	(2)	310	(9)
Black	2	(0)	3	(1)	134	(4)
Chinese	0	(0)	0	(0)	5	(0)
Other	3	(0)	4	(1)	26	(1)
Not reported	131		14		49	
TOTAL	**2617**	**(100)**	**359**	**(100)**	**3521**	**(100)**

Survival Rates Following Transplantation

This chapter shows graft survival rates over time for kidney, pancreas and cornea transplants, and patient survival estimates for kidney, pancreas, cardiothoracic, liver and intestinal transplants, performed in the UK. Separate estimates are presented for adult and paediatric patients (using organ specific age definitions) and for transplants from donors after brain death and donors after circulatory death.

In all cases, the Kaplan-Meier estimate of the survivor function was used to provide the survival rate and groups (years) were compared using the log-rank test. The analyses do not take account of risk factors which may change over time. Graft survival is defined as time from transplant to graft failure, censoring for death with a functioning graft and grafts still functioning at time of analysis. Patient survival is defined as time from transplant to patient death, censoring for patients still alive at time of analysis.

11.1 Kidney graft and patient survival

11.1.1 Adult kidney recipients - donor after brain death (DBD)

Figure 11.1 shows long-term graft survival in adult (≥18 years) recipients for first kidney only transplant from donors after brain death. **Table 11.1** shows the graft survival estimates and confidence intervals for one, two, five and ten years post-transplant. There have been significant improvements in one, two and five year survival over the time periods shown, p<0.01 in each case. **Table 11.2** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There have been significant improvements in one, two and five year survival over the time periods shown, p<0.02 in each case.

Figure 11.1 Long-term graft survival after first adult kidney only transplant from donors after brain death, 1 January 1998 – 31 December 2010

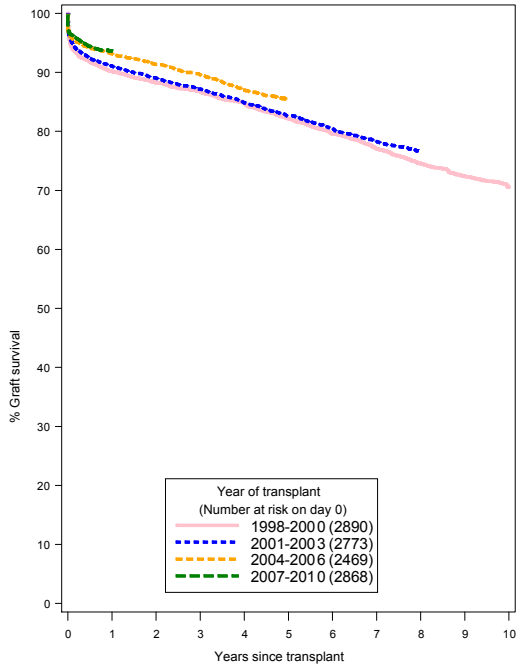


Table 11.1 Graft survival after first adult kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	2890	90	(89-91)	88	(87-89)	82	(81-84)	71	(69-72)
2001-2003	2773	91	(90-92)	89	(88-90)	83	(81-84)		
2004-2006	2469	93	(92-94)	91	(90-92)	85	(84-87)		
2007-2010	2868	94	(93-94)						

Table 11.2 Patient survival after first adult kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	2890	95	(94-96)	93	(92-94)	87	(86-88)	75	(73-77)
2001-2003	2773	95	(94-96)	93	(92-94)	88	(86-89)		
2004-2006	2469	97	(96-97)	95	(94-96)	90	(88-91)		
2007-2010	2868	96	(95-97)						

11.1.2 Adult kidney recipients - donor after circulatory death (DCD)

Long-term graft survival in adult recipients for kidney transplants from donors after circulatory death is shown in **Figure 11.2**. **Table 11.3** shows the graft survival estimates and confidence intervals for one, two, five and ten years post-transplant. There has been a significant improvement in one, two and five year survival over the time periods shown, $p<0.01$ in each case. One year patient survival is comparable for DBD and DCD donor transplants in the most recent time periods. **Table 11.4** shows the patient survival estimates and confidence intervals for each time period analysed. There were no statistically significant changes in patient survival over time ($p>0.1$).

Figure 11.2 Long-term graft survival after first adult kidney only transplant from donors after circulatory death, 1 January 1998 – 31 December 2010

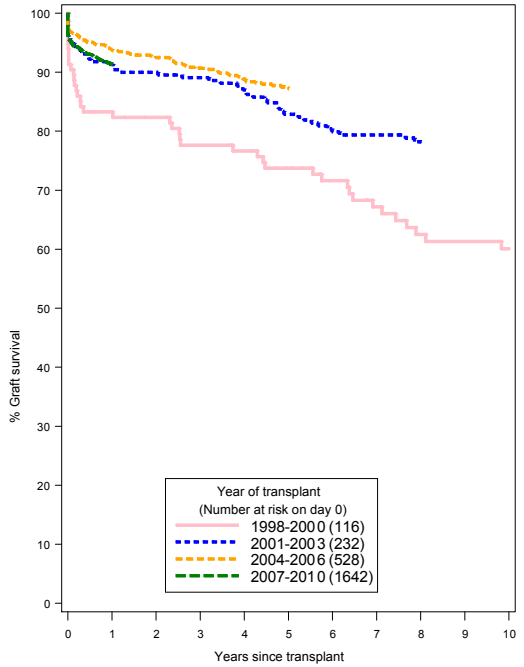


Table 11.3 Graft survival after first adult kidney only transplant from a DCD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	116	83	(75-89)	82	(74-88)	74	(64-81)	60	(50-69)
2001-2003	232	91	(87-94)	90	(85-93)	83	(77-87)		
2004-2006	528	94	(91-96)	92	(90-94)	87	(84-90)		
2007-2010	1642	91	(90-93)						

Table 11.4 Patient survival after first adult kidney only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	116	92	(85-96)	90	(83-95)	84	(75-89)	67	(57-75)
2001-2003	232	96	(92-98)	94	(90-96)	86	(81-90)		
2004-2006	528	95	(93-96)	93	(91-95)	86	(82-89)		
2007-2010	1642	96	(94-97)						

11.1.3 Adult kidney recipients - living donor

Long-term graft survival in adult recipients for living donor kidney transplants in the UK is shown in **Figure 11.3**. **Table 11.5** shows graft survival estimates and confidence intervals for each time period analysed. There has been a significant improvement in five year graft survival over the time periods shown, p=0.02. **Table 11.6** shows the patient survival estimates and confidence intervals for one, two, five and ten years post transplant. There were no statistically significant changes in patient survival over time (p>0.1).

Figure 11.3 Long-term graft survival after first adult living donor kidney only transplant in the UK, 1 January 1998 – 31 December 2010

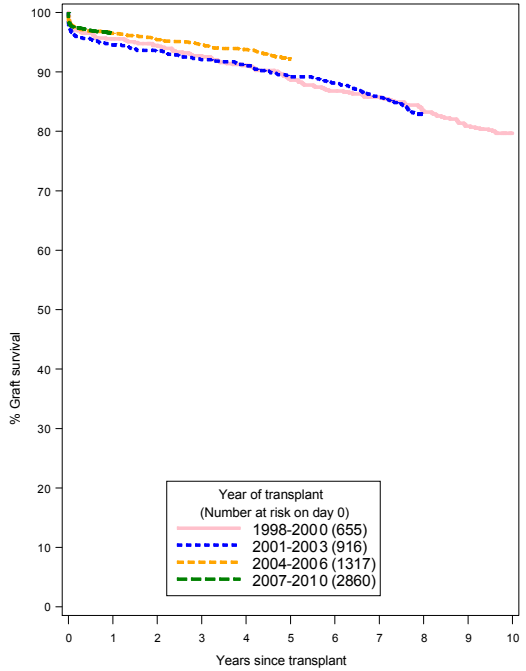


Table 11.5 Graft survival after first adult living donor kidney transplant

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	655	96	(94-97)	94	(92-96)	89	(86-91)	80	(76-83)
2001-2003	916	95	(93-96)	94	(92-95)	89	(87-91)		
2004-2006	1317	96	(95-97)	95	(94-96)	92	(90-93)		
2007-2010	2860	96	(96-97)						

Table 11.6 Patient survival after first adult living donor kidney transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	655	98	(96-99)	98	(96-98)	95	(93-97)	90	(87-92)
2001-2003	916	98	(97-99)	97	(96-98)	95	(94-96)		
2004-2006	1317	99	(98-99)	98	(97-99)	96	(95-97)		
2007-2010	2860	99	(98-99)						

11.1.4 Paediatric kidney recipients - donor after brain death (DBD)

Figure 11.4 shows long-term graft survival in paediatric (<18 years) recipients for first kidney only transplants from donors after brain death. Graft survival estimates and confidence intervals are shown for each time period analysed in **Table 11.7**. There has been a significant improvement in one year survival over the time periods shown, p=0.02. **Table 11.8** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant changes in patient survival over time (p>0.1).

Figure 11.4 Long-term graft survival after first paediatric kidney only transplant from donors after brain death, 1 January 1998 – 31 December 2010

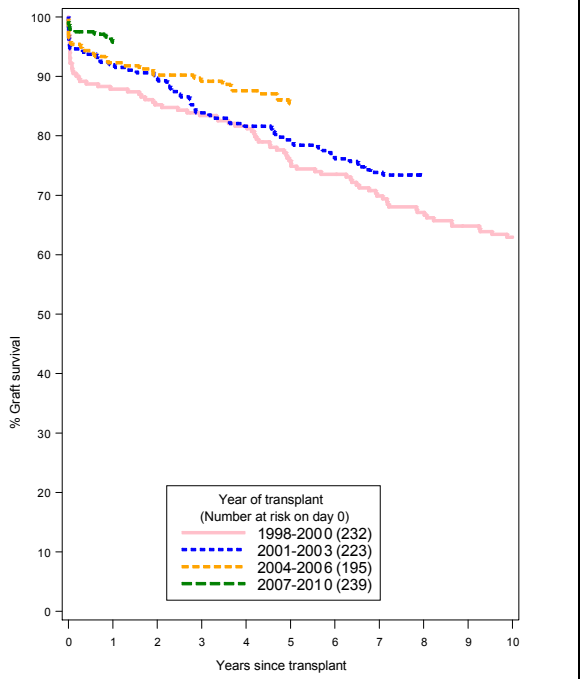


Table 11.7 Graft survival after first paediatric kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	232	88	(83-91)	85	(80-89)	76	(70-81)	63	(56-69)
2001-2003	223	92	(87-95)	90	(85-93)	79	(73-84)		
2004-2006	195	92	(88-95)	90	(85-94)	85	(80-90)		
2007-2010	239	96	(92-98)						

Table 11.8 Patient survival after first paediatric kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	232	98	(95-99)	98	(95-99)	97	(94-99)	94	(90-97)
2001-2003	223	100	(-)	100	(-)	99	(96-100)		
2004-2006	195	99	(96-100)	99	(96-100)	99	(96-100)		
2007-2010	239	100	(-)						

11.1.5 Paediatric kidney recipients - living donor

Long-term graft survival in paediatric recipients for living donor kidney transplants in the UK is shown in **Figure 11.5**. **Table 11.9** shows graft survival estimates and confidence intervals for each time period analysed. There has been a significant improvement in five year survival over the time periods shown, p=0.01. **Table 11.10** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant differences in patient survival over time (p>0.05). There were insufficient paediatric recipients of first kidney only transplants from donors after circulatory death to permit reliable analysis.

Figure 11.5 Long-term graft survival after first paediatric living donor kidney only transplant in the UK, 1 January 1998 – 31 December 2010

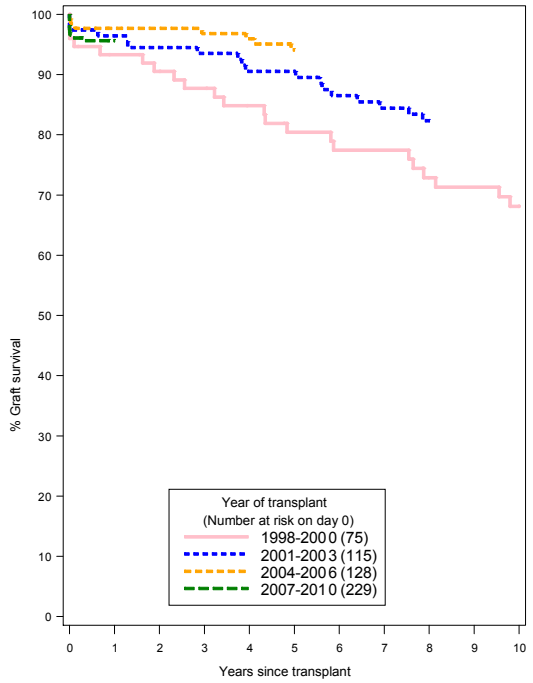


Table 11.9 Graft survival after first paediatric living donor kidney transplant

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	75	93	(85-97)	91	(81-95)	80	(69-88)	68	(56-78)
2001-2003	115	96	(91-99)	94	(88-97)	91	(83-95)		
2004-2006	128	98	(93-99)	98	(93-99)	94	(88-97)		
2007-2010	229	96	(92-98)						

Table 11.10 Patient survival after first paediatric living donor kidney transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	75	99	(91-100)	97	(90-99)	96	(88-99)	93	(84-97)
2001-2003	115	96	(91-99)	96	(91-99)	95	(89-98)		
2004-2006	128	100	(-)	100	(-)	100	(-)		
2007-2010	229	99	(96-100)						

11.2 Pancreas graft and patient survival

11.2.1 Simultaneous kidney/pancreas transplants - donor after brain death (DBD)

National pancreas follow-up data are only available for transplants performed since 1 January 2001. There are insufficient data available to analyse long-term survival. **Figure 11.6** shows pancreas graft survival in recipients receiving their first simultaneous kidney/pancreas (SPK) transplant performed from donors after brain death, 2001 - 2003, 2004 - 2006 and 2007 - 2010. Graft and patient survival estimates and confidence intervals are shown at one year, two years and five years in **Table 11.11** and **Table 11.12** respectively. Results relate to adults only as there are no paediatric pancreas transplant recipients.

Figure 11.6 Pancreas graft survival after first SPK transplant from donors after brain death, 1 January 2001 – 31 December 2010

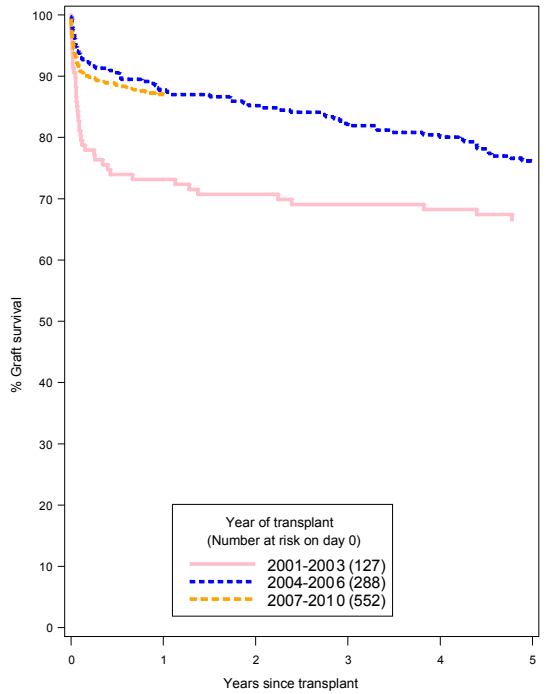


Table 11.11 Graft survival after first SPK transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year	
2001-2003	127	73	(65-80)	71	(62-78)	67	(58-74)
2004-2006	288	88	(83-91)	85	(80-89)	76	(71-81)
2007-2010	552	87	(84-90)				

Table 11.12 Patient survival after first SPK transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year	
2001-2003	127	89	(81-93)	89	(81-93)	84	(76-90)
2004-2006	288	94	(91-96)	92	(89-95)	88	(83-91)
2007-2010	552	97	(95-98)				

11.2.2 Simultaneous kidney/pancreas transplants - donor after circulatory death (DCD)

The majority of simultaneous kidney/pancreas (SPK) transplants from a DCD have been performed since 1 January 2007, so there are insufficient data available to analyse long-term survival. **Figure 11.7** shows pancreas graft survival in recipients receiving their first SPK transplant performed from donors after circulatory death, 2007 - 2010. Graft and patient survival estimates and confidence intervals are shown at one year in **Table 11.13** and **Table 11.14** respectively. Results are for adult patients only.

Figure 11.7 Pancreas graft survival after first SPK transplant from donors after circulatory death, 1 January 2007 – 31 December 2010

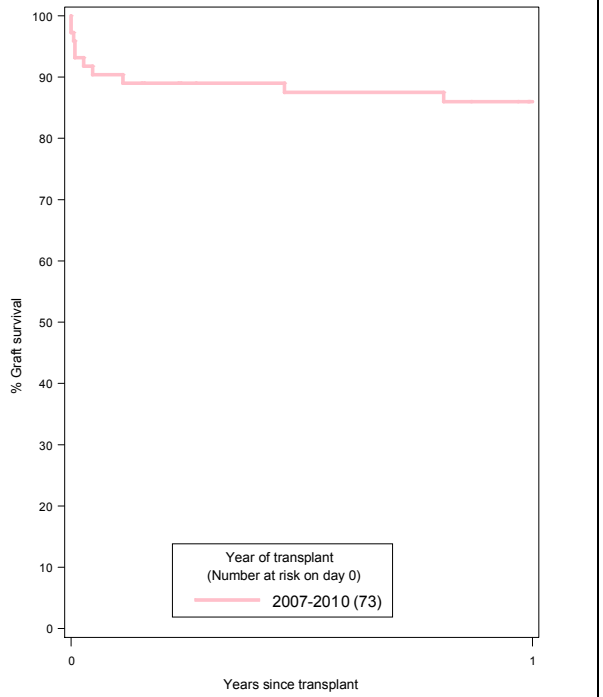


Table 11.13 Graft survival after first SPK transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
2007-2010	73	86	(75-92)

Table 11.14 Patient survival after first SPK transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
2007-2010	73	96	(88-99)

11.2.3 Pancreas only transplants - donor after brain death (DBD)

Figure 11.8 shows pancreas graft survival in recipients receiving their first pancreas only transplant performed from donors after brain death, 2001 - 2003, 2004 - 2006 and 2007 - 2010. Graft and patient survival estimates and confidence intervals are shown at one year, two years and five years in **Table 11.15** and **Table 11.16** respectively. Results are for adult patients only.

Figure 11.8 Pancreas graft survival after pancreas only transplant from donors after brain death, 1 January 2001 – 31 December 2010

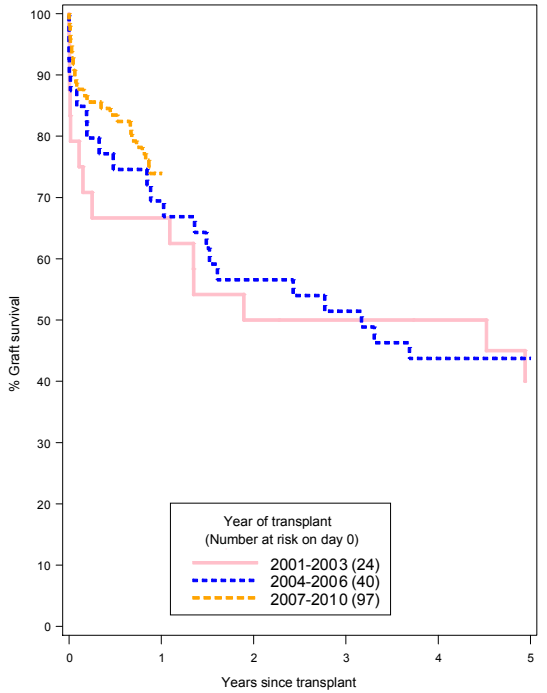


Table 11.15 Graft survival after first pancreas only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year	
2001-2003	24	67	(44-82)	50	(29-68)	40	(20-59)
2004-2006	40	69	(52-81)	57	(40-70)	44	(28-58)
2007-2010	97	74	(64-82)				

Table 11.16 Patient survival after first pancreas only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year	
2001-2003	24	95	(72-99)	95	(72-99)	72	(44-87)
2004-2006	40	98	(84-100)	94	(79-99)	94	(79-99)
2007-2010	97	93	(86-97)				

11.2.4 Pancreas only transplants - donor after circulatory death (DCD)

Figure 11.9 shows pancreas graft survival in recipients receiving their first pancreas only transplant performed from donors after circulatory death, 2007 - 2010. Graft and patient survival estimates and confidence intervals are shown at one year in **Table 11.17** and **Table 11.18** respectively. Results are for adult patients only.

Figure 11.9 Pancreas graft survival after pancreas only transplant from donors after circulatory death, 1 January 2007 – 31 December 2010

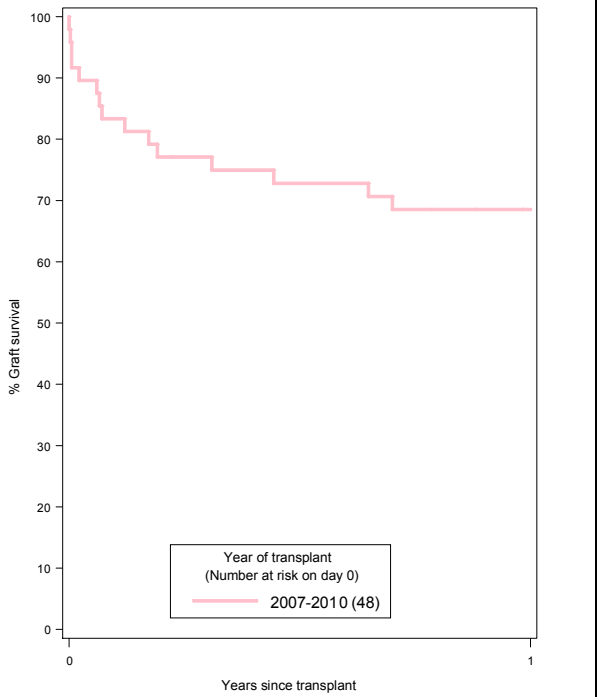


Table 11.17 Graft survival after first pancreas only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
2007-2010	48	69	(53-80)

Table 11.18 Patient survival after first pancreas only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
2007-2010	48	98	(85-100)

11.3 Cardiothoracic patient survival

11.3.1 Adult heart recipients

Long-term patient survival for adult (≥16 years) recipients after first heart only transplants is shown in **Figure 11.10**. Domino and deceased donor (DBD only) transplants are included as well as urgent patients. **Table 11.19** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant changes in survival rates over the time periods analysed (p>0.2).

Figure 11.10 Long-term patient survival after first adult heart only transplant in the UK, 1 January 1998 – 31 December 2010

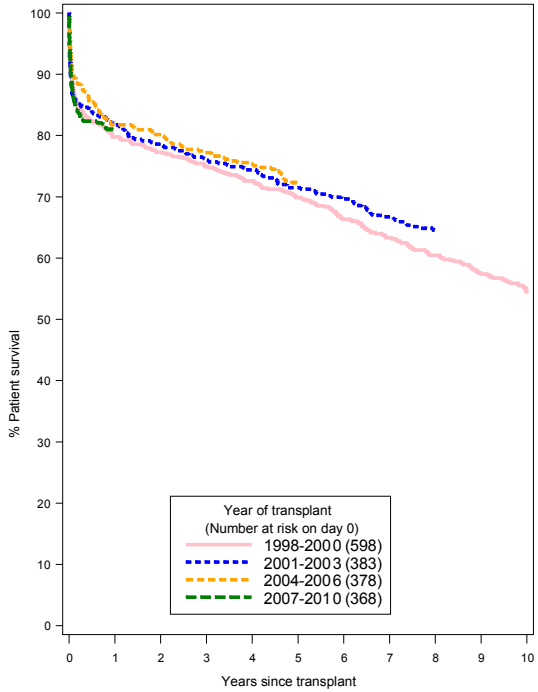


Table 11.19 Patient survival after first adult heart only transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	598	80	(76-83)	77	(74-80)	70	(66-73)	55	(50-58)
2001-2003	383	82	(77-85)	79	(74-82)	71	(67-76)		
2004-2006	378	82	(77-85)	80	(76-84)	72	(67-77)		
2007-2010	368	81	(76-84)						

11.3.2 Adult heart/lung block recipients

Patient survival for adult recipients after first heart/lung block transplants is shown in **Figure 11.11**. Patient survival estimates and confidence intervals for each time period analysed are shown in **Table 11.20**. There were no statistically significant differences in patient survival over time (p>0.3).

Figure 11.11 Long-term patient survival after first adult heart/lung block transplant in the UK, 1 January 1998 – 31 December 2010

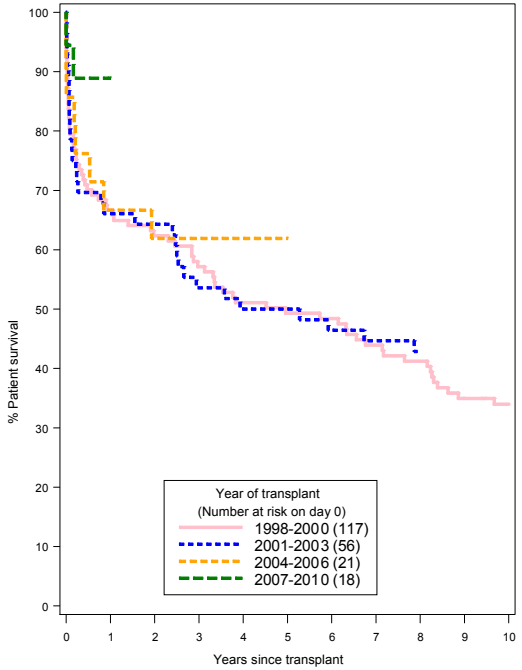


Table 11.20 Patient survival after first adult heart/lung block transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	117	67	(57-74)	62	(53-70)	49	(40-58)	34	(25-43)
2001-2003	56	66	(52-77)	64	(50-75)	50	(36-62)		
2004-2006	21	67	(43-83)	62	(38-79)	62	(38-79)		
2007-2010	18	89	(62-97)						

11.3.3 Adult lung recipients – donors after brain death (DBD)

Patient survival for adult recipients after first lung only transplant from donors after brain death is shown in **Figure 11.12**, with survival estimates and confidence intervals shown in **Table 11.21**. There were no statistically significant differences in patient survival over time (p>0.2).

Figure 11.12 Long-term patient survival after first adult lung only transplant from donors after brain death, 1 January 1998 – 31 December 2010

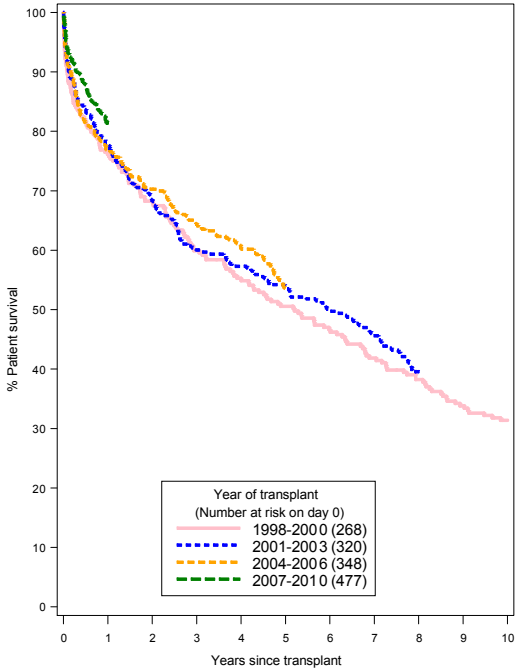


Table 11.21 Patient survival after first adult lung only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	268	76	(71-81)	68	(62-73)	51	(44-56)	31	(26-37)
2001-2003	320	78	(73-82)	68	(63-73)	54	(48-59)		
2004-2006	348	77	(72-81)	70	(65-75)	54	(48-59)		
2007-2010	477	81	(78-85)						

11.3.4 Adult lung recipients – donors after circulatory death (DCD)

The majority of lung transplants from a DCD have been performed since 1 January 2007, so there are insufficient data available to analyse long-term patient survival. Patient survival for adult recipients after first lung only transplant from donors after circulatory death is shown in **Figure 11.13**, with survival estimates and confidence intervals shown in **Table 11.22**.

Figure 11.13 Patient survival after first adult lung only transplant from donors after circulatory death, 1 January 2007 – 31 December 2010

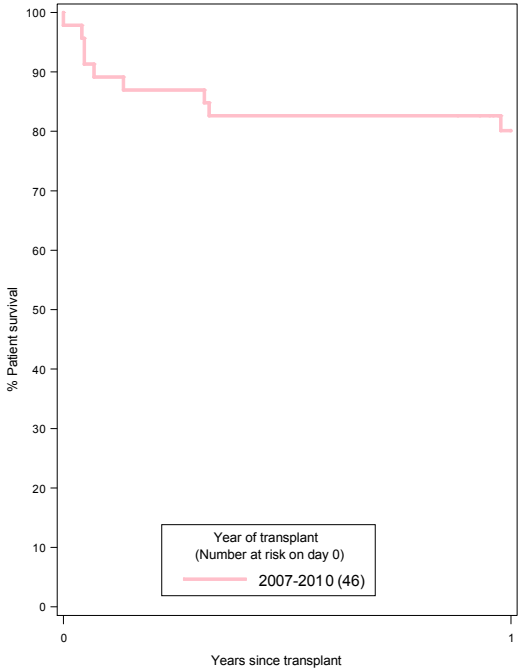


Table 11.22 Patient survival after first adult lung only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
2007-2010	46	80	(65-89)

11.3.5 Paediatric heart recipients

Long-term patient survival for paediatric recipients after first heart only transplant is shown in **Figure 11.14**. Domino and deceased donor transplants (DBD donors only) are included as well as transplants for urgent patients. **Table 11.23** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There have been significant improvements in two and five year survival over the time periods shown, p<0.01 in each case. The number of paediatric lung and heart/lung transplant recipients was too small for analysis.

Figure 11.14 Long-term patient survival after first paediatric heart only transplant in the UK, 1 January 1998 – 31 December 2010

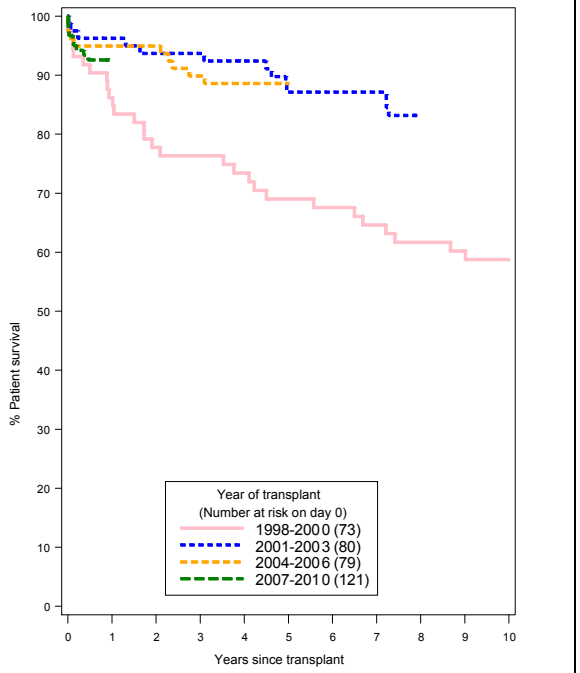


Table 11.23 Patient survival after first paediatric heart only transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	73	86	(76-92)	78	(66-86)	69	(57-78)	59	(46-69)
2001-2003	80	96	(89-99)	94	(85-97)	87	(77-93)		
2004-2006	79	95	(87-98)	95	(87-98)	89	(79-94)		
2007-2010	121	93	(86-96)						

11.4 Liver patient survival

11.4.1 Adult recipients - donor after brain death (DBD)

Long-term patient survival for adult (≥17 years) recipients after first elective liver only transplants from donors after brain death is shown in **Figure 11.15**. **Table 11.24** shows patient survival estimates at one, two, five and ten years post-transplant. There have been significant improvements in one, two and five year patient survival over the time periods analysed, p<0.001, p<0.001 and p<0.002, respectively.

Figure 11.15 Long-term patient survival after first elective adult liver only transplant from donors after brain death, 1 January 1998 – 31 December 2010

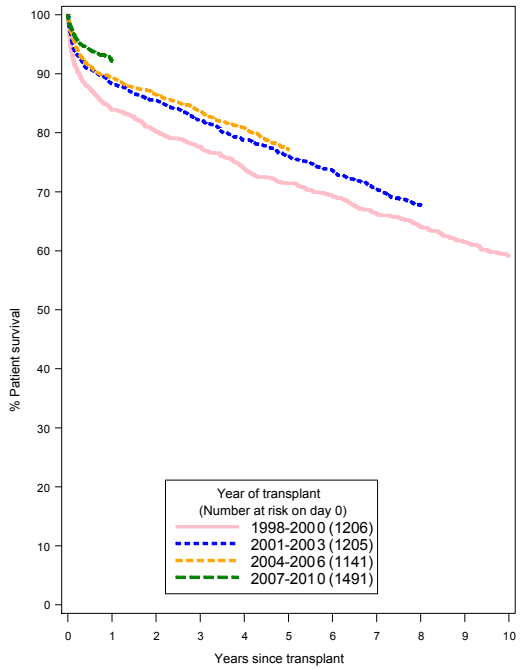


Table 11.24 Patient survival after first elective adult liver only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	1206	84	(82-86)	80	(78-82)	71	(69-74)	59	(56-62)
2001-2003	1205	88	(86-90)	85	(83-87)	76	(73-78)		
2004-2006	1141	89	(88-91)	86	(84-88)	77	(75-80)		
2007-2010	1491	92	(91-93)						

11.4.2 Adult recipients - donor after circulatory death (DCD)

Patient survival for adult (≥17 years) recipients after first elective liver only transplants from donors after circulatory death is shown in **Figure 11.16**. The majority of these liver transplants have been performed since 1 January 2002, so it is not possible to estimate long term patient survival. **Table 11.25** shows patient survival estimates at one, two and three years post transplant.

Figure 11.16 Liver patient survival after first elective adult liver only transplant from donors after circulatory death, 1 January 2004 – 31 December 2010

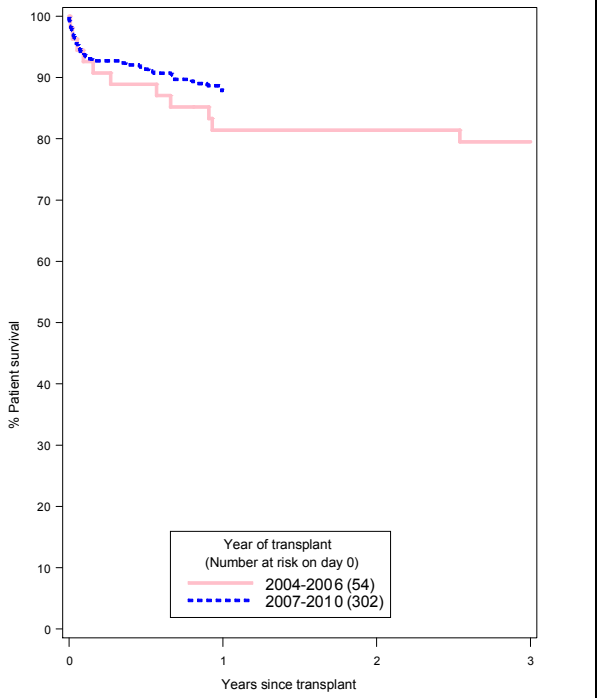


Table 11.25 Patient survival after first elective adult liver only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Three year	
2004-2006	54	81	(68-90)	81	(68-90)	80	(66-88)
2007-2010	302	88	(84-91)				

11.4.3 Paediatric recipients - donor after brain death (DBD)

Figure 11.17 and **Table 11.26** show long-term patient survival estimates for first elective liver only transplants from donors after brain death in paediatric (<17 years) recipients. There have been significant improvements in one year patient survival over the time period analysed (p=0.04). The number of paediatric transplants from donors after circulatory death was too small to estimate patient survival.

Figure 11.17 Long-term patient survival after first elective paediatric liver only transplant from donors after brain death, 1 January 1998 – 31 December 2010

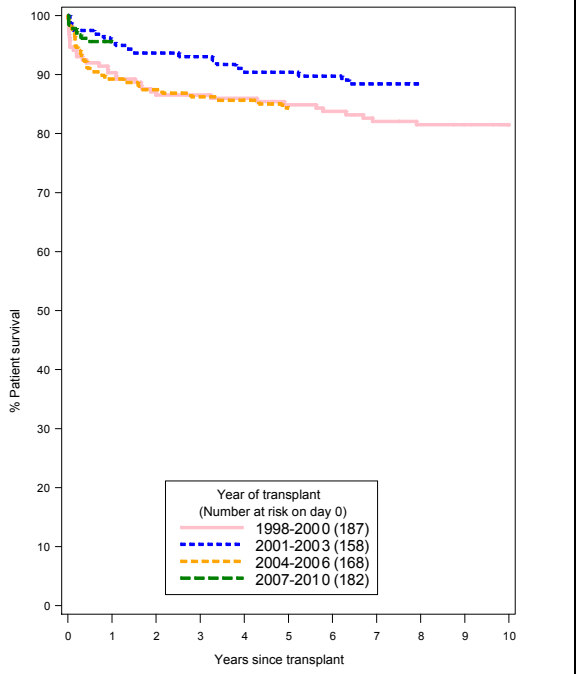


Table 11.26 Patient survival after first elective paediatric liver only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1998-2000	187	90	(85-94)	87	(81-91)	85	(79-89)	81	(75-86)
2001-2003	158	96	(91-98)	94	(89-97)	90	(85-94)		
2004-2006	168	89	(83-93)	87	(81-92)	84	(78-89)		
2007-2010	182	96	(91-98)						

11.5 Intestinal patient survival

The majority of intestinal transplants have been performed since 1 January 2006, so there are insufficient data available to analyse long-term patient survival. **Figure 11.18** and **Table 11.27** show one-year patient survival estimates for recipients receiving their first intestinal transplant, 2007 – 2010, by recipient age group.

Figure 11.18 Patient survival after first intestinal graft in the UK, 1 January 2006 – 31 December 2010

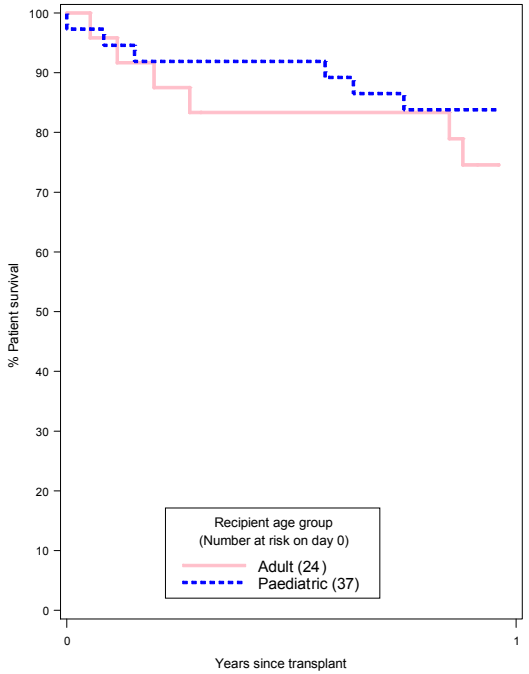


Table 11.27 Patient survival after first intestinal transplant in the UK, 1 January 2006 - 31 December 2010

Recipient age group	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
Adult	24	75	(52-88)
Paediatric	37	84	(67-92)

11.6 Cornea graft survival

Good quality cornea follow-up data were only available for transplants performed since 1 April 1999. There are insufficient data available to analyse long-term survival effects. **Figure 11.19** shows graft survival estimates for first penetrating keratoplasty (PK) for grafts 2001 - 2003, 2004 - 2006 and 2007 - 2010. Graft survival estimates and confidence intervals are shown by transplant year at one, two and five years in **Table 11.28.**

Figure 11.19 Cornea graft survival after first PKP graft in the UK, 1 January 2001 – 31 December 2010

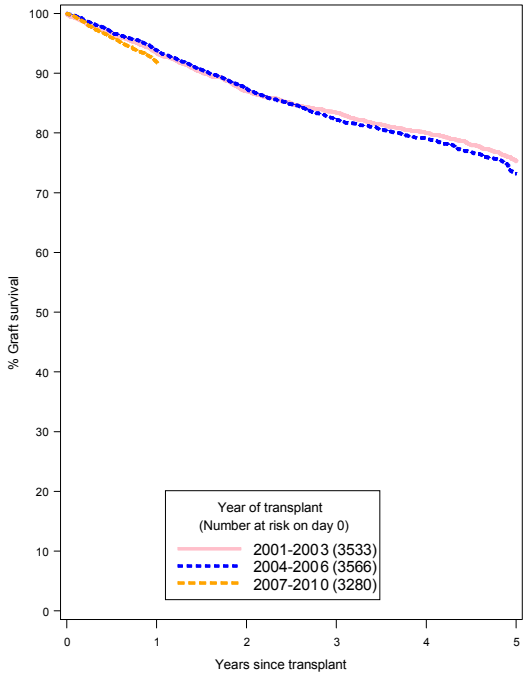


Table 11.28 Cornea graft survival after first PK in the UK

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year	
2001-2003	3533	93	(92-94)	87	(86-88)	75	(73-77)
2004-2006	3566	94	(93-95)	87	(86-89)	73	(71-75)
2007-2010	3280	92	(91-93)				

NHS Organ Donor Register

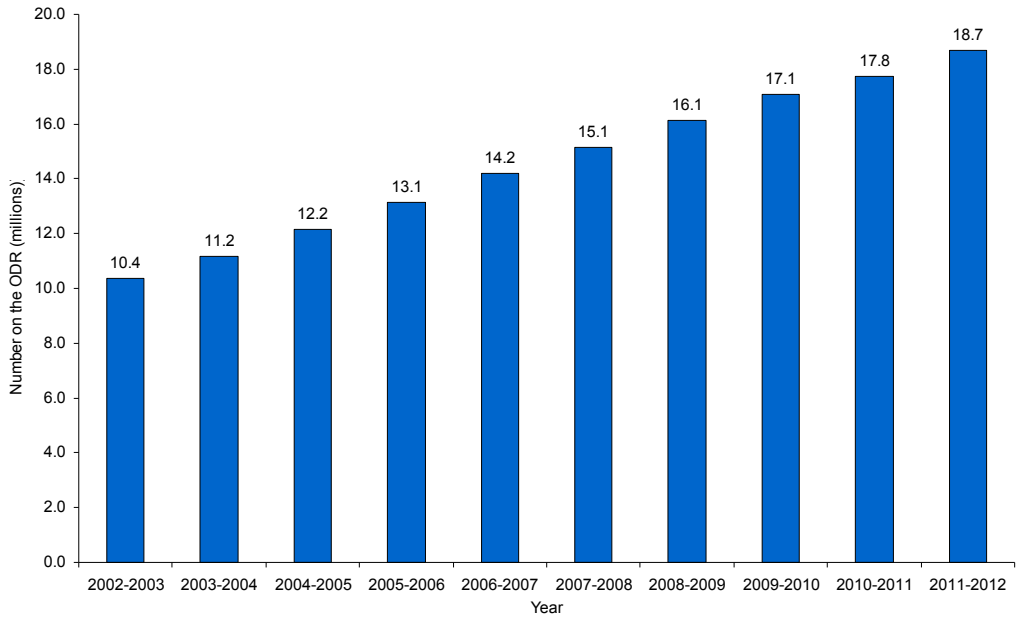
Key messages

- 18.7 million people on the ODR at March 2012 (30% of UK population)
- 37% of 1,088 deceased organ donors last year were on the ODR
- 57% of registrations last year were through the Driver and Vehicle Licensing Agency (DVLA)

By the end of March 2012 the NHS Organ Donor Register (ODR) held just under 18.7 million registrations. A summary of the number of registrations at the end of each financial year from 31 March 2003 to 31 March 2012 is shown in **Figure 12.1**. During the year, data on the register were continually reviewed and validated.

Of the 1,088 deceased organ donors in 2011-2012, 37% were registered on the ODR compared with 33% of organ donors in 2010-2011. Similarly, 41% of cornea-only donors in 2011-2012 were registered on the ODR, compared with 39% in 2010-2011.

Figure 12.1 Number on the NHS Organ Donor Register at 31 March



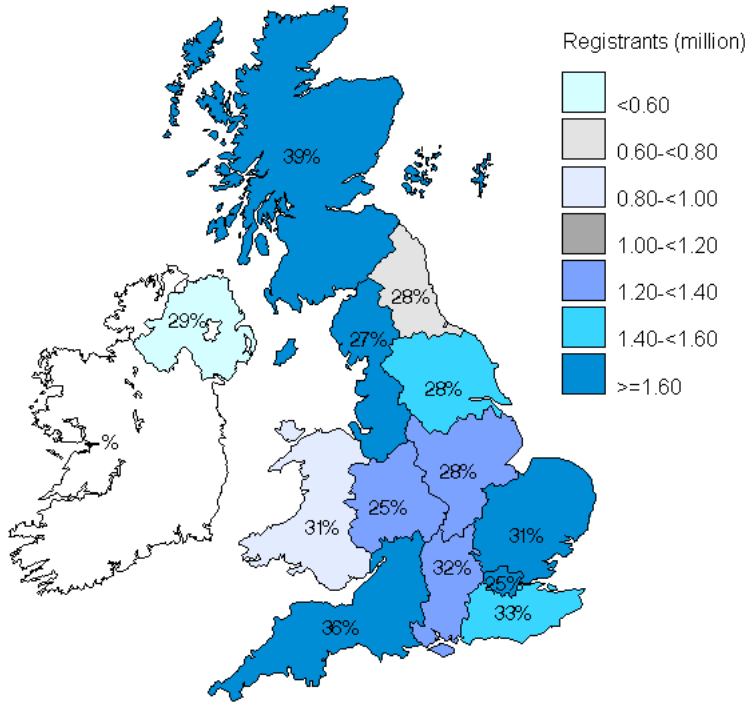
Those registered on the ODR come from all parts of the UK. **Table 12.1** shows the percentage of the population registered in each Strategic Health Authority at 31 March 2012, and the number of registrants. This information is also illustrated in **Figure 12.2**. No adjustment has been made for any differences in demographics of the populations.

Table 12.1 Registrants on the NHS Organ Donor Register at 31 March 2012, by Country/Strategic Health Authority

Country/Strategic Health Authority	Registrants		
	N	pmp	Proportion of population registered
North East	724,348	277,528	28%
North West	1,896,184	273,225	27%
Yorkshire and The Humber	1,470,373	277,429	28%
North of England	**4,090,905**	**275,482**	**28%**
East Midlands	1,254,255	279,968	28%
West Midlands	1,349,552	247,171	25%
East of England	1,785,355	306,236	31%
Midlands and East	**4,389,162**	**278,324**	**28%**
London	**1,952,495**	**249,361**	**25%**
South East Coast	1,465,919	333,922	33%
South Central	1,344,504	324,759	32%
South West	1,871,223	355,071	36%
South of England	**4,681,646**	**339,250**	**34%**
England	**15,114,208**	**289,378**	**29%**
Isle of Man	**10,596**	**132,450**	**13%**
Channel Islands	**13,257**	**88,380**	**9%**
Wales	**942,798**	**313,222**	**31%**
Scotland	**2,024,869**	**387,906**	**39%**
Northern Ireland	**520,975**	**289,431**	**29%**
TOTAL[1]	**18,693,549**	**299,145**	**30%**

[1] Includes 66,846 registrants where the postcode was unknown

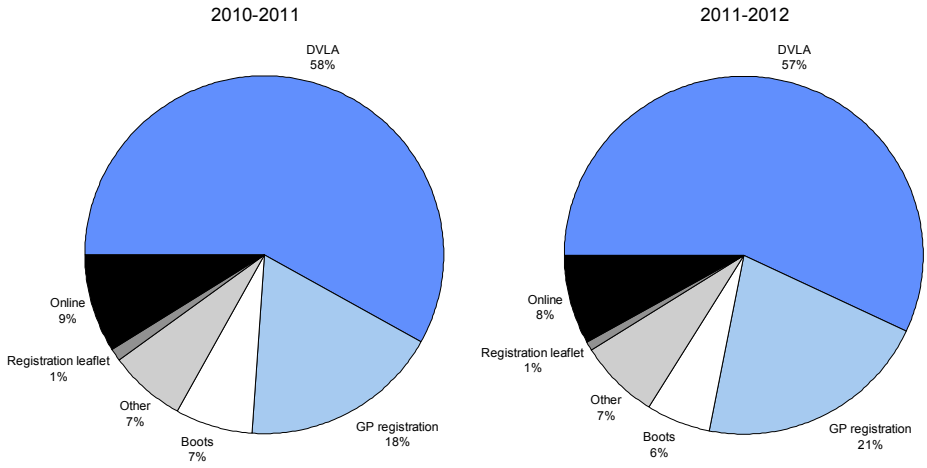
Figure 12.2 Proportion of population registered on the NHS Organ Donor Register by 31 March 2012, by Strategic Health Authority



There are a number of registration routes: Health Department registration leaflets readily available in the community; campaigns in both national and regional newspapers and by community groups; the European Health Insurance Card; when registering as a patient with a General Practitioner (via the Family Health Services Authorities); with driving licence applications and reminders (via the Driver and Vehicle Licensing Agency (DVLA)); from the Passport Agency when applying for a new passport; when applying for a Boots Advantage Card; online registrations via the Organ Donation and Transplantation (ODT) website (www.organdonation.nhs.uk) and by telephone.

The source of applications for registration on the ODR is illustrated in **Figure 12.3**. This figure shows that 21% of registrations in 2011-2012 arrived by means of the Family Health Services Authorities/GP, 57% from driving licence applications and reminders through the DVLA and 8% online through the ODT website.

Figure 12.3 Source of applications for registration on the NHS Organ Donor Register, 1 April 2010 - 31 March 2012



At the end of March 2012, 88% of registrants, where the information was available, indicated a willingness to donate all organs and tissue (kidneys, pancreas, heart, lungs, liver and corneas). However, of those who were not willing to donate all organs, the majority (87%) did not wish to donate their corneas. Of the restricted registrations, only 7% (less than 1% of the total register) did not wish to donate their kidneys. Willingness to donate, by organ type, is shown in **Table 12.2**.

Table 12.2 Preparedness of those registered on the NHS Organ Donor Register at 31 March 2012 to donate different organs[1]

Registrants prepared to donate all organs 88%

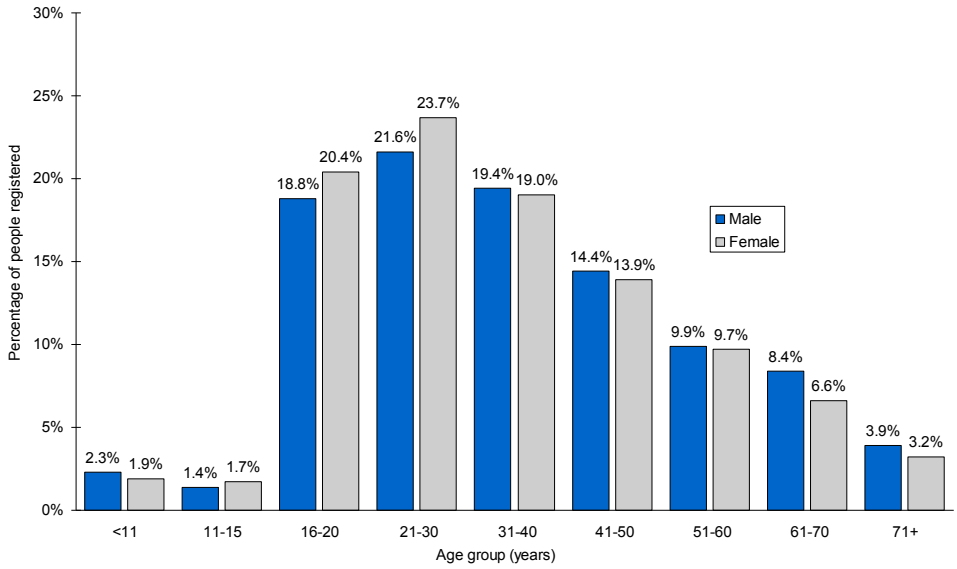
Of those not prepared to donate all organs ('restricted donors'):

Not prepared to donate:	% of 'Restricted donors'	% of all registrants
Kidney	7	0.8
Pancreas	24	2.8
Heart	25	2.9
Lungs	22	2.6
Liver	14	1.6
Corneas	87	10.1

[1] This information was not available for approximately 7% of the total register

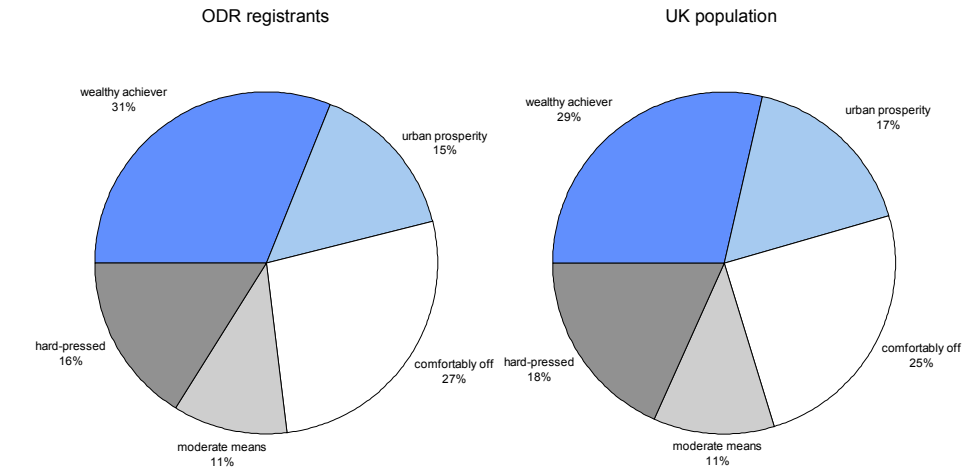
People of all ages are eligible for organ donor registration: the distribution of age by sex at time of registration is shown in **Figure 12.4**. The highest proportion of registrations (22% of males and 24% of females) are in the 21-30 years age group. The lowest proportions are in the under 11 and 11-15 age groups. Of all people registered on the NHS Organ Donor Register, 48% are male and 52% are female.

Figure 12.4 Age and gender of people registered on the NHS Organ Donor Register by 31 March 2012



The breakdown of registrants on the ODR during 2011-2012 by socio-economic group (using the ACORN[1] classification, based on postcode) is shown in **Figure 12.5**, where it is compared with the general UK population. Though having basically similar distributions, there were proportionately more 'wealthy achievers' and less 'hard pressed' on the ODR than in the general population.

Figure 12.5 Registrants on the NHS Organ Donor Register, 1 April 2011 - 31 March 2012, and the general population, by socio-economic group



[1] ACORN data supplied by CACI Ltd.

National Potential Donor Audit

Key messages

- There were 28,977 audited deaths reported through the Potential Donor Audit in 2011-2012, including 1,026 (94%) of the 1,088 deceased organ donors
- The neurological death testing rate has increased since last year from 72% to 74%
- Improvements have been observed since last year in the overall referral rate of possible donors (from 52% to 60%) and the rate of approach to donor families (from 60% to 66%)
- A decrease in the overall consent/authorisation rate has been observed since last year (from 57% to 55%), while the actual number of families that consented to/authorised donation has increased by more than 100 families (from 1,378 to 1,487)
- The consent/authorisation rate is higher when a Specialist Nurse – Organ Donation (SN-OD) is involved in the family approach compared with approaches where a SN-OD is not involved (66% and 38%, respectively) but more than a third of approaches go ahead without SN-OD involvement
- The consent/authorisation rate is lower for patients from ethnic minority groups (24%) compared with the rate observed for white patients (61%)

13.1 Introduction

In this chapter, summary data from the national Potential Donor Audit (PDA) are shown for 1 April 2011 to 31 March 2012 and data from the previous financial year are also provided for comparison purposes. The data comprise all audited patient deaths in UK Intensive Care Units (ICUs) and emergency departments, excluding cardiothoracic ICUs and patients aged 76 years and over, in the time period. The data are based on information received by 5 July 2012. **The number of solid organ donors reported in this chapter will differ from that shown in the rest of the report, due to the national PDA excluding certain patients**.

13.2 Definitions

All data shown in this chapter use the following definitions.

Potential donors after brain death (DBD) are defined as patients for whom death was confirmed following neurological tests and who had no absolute or relative medical contraindications to solid organ donation.

Potential donors after circulatory death (DCD) are defined as patients for whom imminent death was anticipated and treatment was withdrawn and who had no absolute or relative medical contraindications to solid organ donation.

Absolute or relative medical contraindications are defined as known HIV positive, known or suspected CJD, active untreated tuberculosis, any malignancy within the past 12 months (excluding brain tumour) and multi-organ failure.

The referral rate is the percentage of patients for whom neurological death was suspected, or imminent death was anticipated, that were discussed with the Specialist Nurse - Organ Donation (SN-OD).

The approach rate is the percentage of potential donor families approached for consent to/authorisation for donation.

The consent/authorisation rate is the percentage of potential donor families approached about donation that consented to/authorised donation.

The conversion rate is the percentage of potential donors who became actual donors. *Note that there are many reasons why potential donors do not become actual donors including the family not being approached or the family not consenting to/authorising donation but also coroner/procurator fiscal refusal and the potential donor being found to have additional medical contraindications*.

13.3 Breakdown of audited deaths in ICUs and emergency departments

In the 12-month period there were a total of 28,977 audited patient deaths in the UK. **Figures 13.1** and **13.2** show a detailed breakdown from the number of audited patient deaths to the number of solid organ donors for potential DBD and DCD, respectively.

Figure 13.1 Donation after brain death

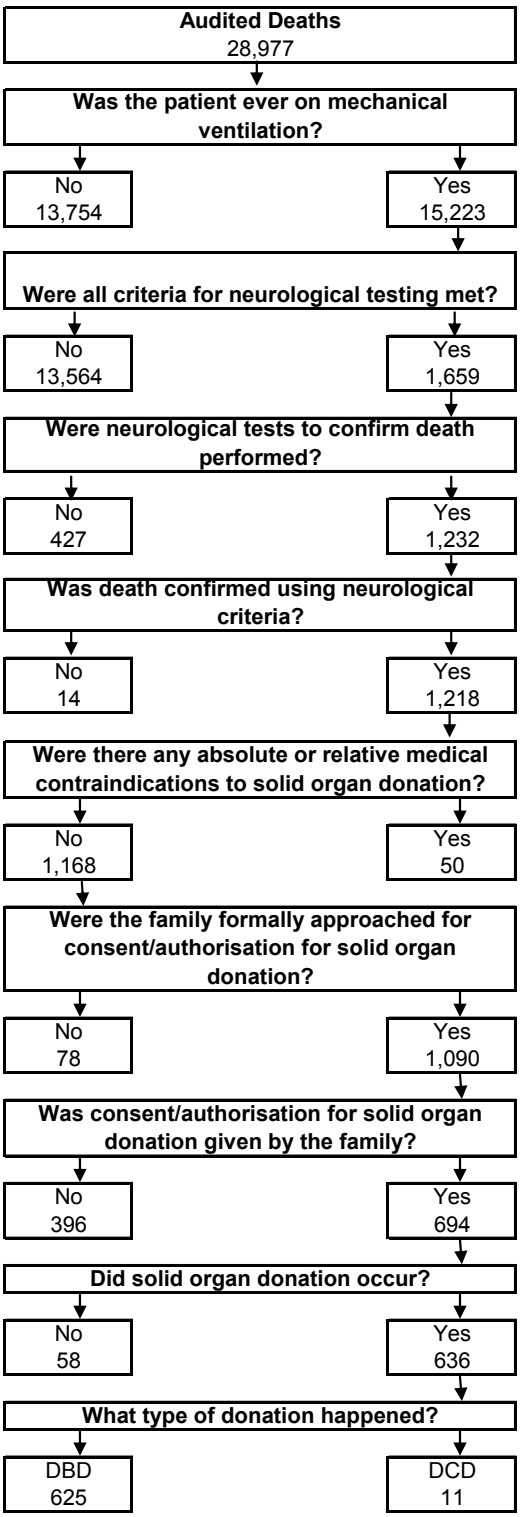


Figure 13.2 Donation after circulatory death

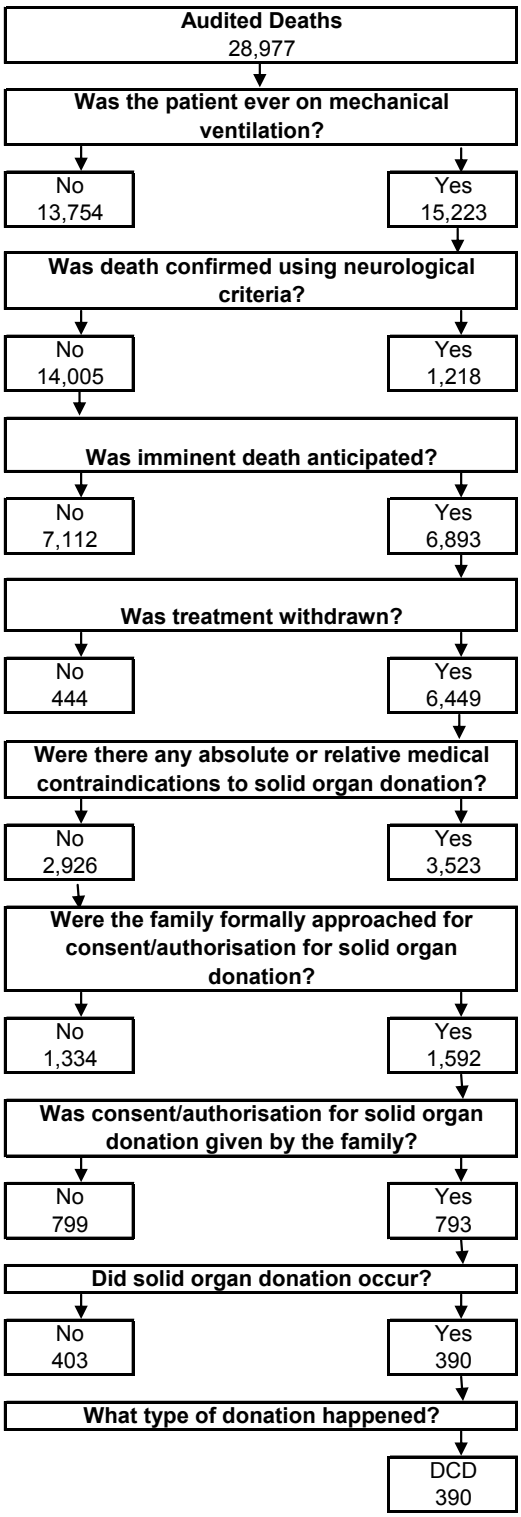
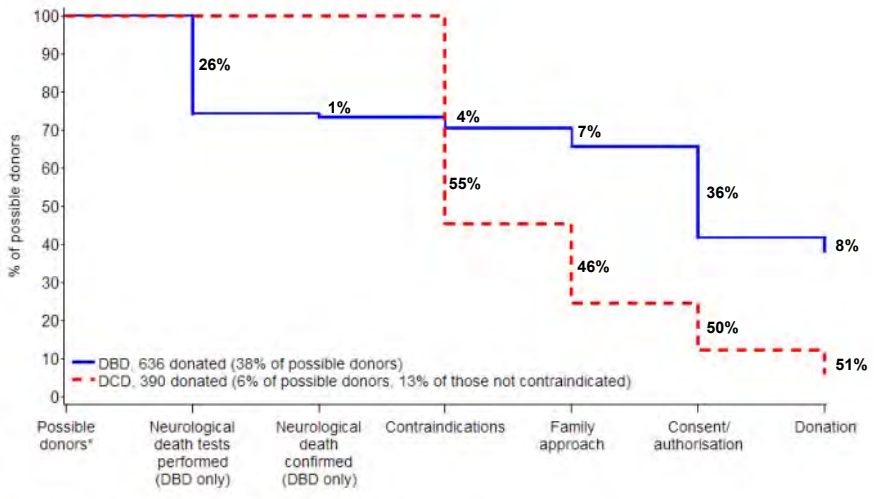


Table 13.1 shows the key percentages calculated from the flow chart information. Consent/authorisation rates have also been provided for cases where the SN-OD was/was not involved in the approach to the family and/or whether the patient was on the NHS Organ Donor Register (ODR). Although it is unrealistic to expect any of these rates to be 100%, it should be noted that the DCD conversion rate is particularly low, partly due to a large proportion of potential DCD having a prolonged time to death which results in deterioration of organs making them unsuitable for transplant. **Figure 13.3** uses the flow chart information to illustrate the stages where opportunities for organ donation are not realised. A large proportion of possible DCD donors are not categorised as potential DCD donors due to absolute or relative medical contraindications (55%), most commonly multi-organ failure and malignancy. Additionally, as stated above, a large proportion of potential DCD donors have a prolonged time to death, contributing to the 51% of patients with consent/authorisation who did not become actual donors.

Table 13.1 Summary of key percentages, 1 April 2011 to 31 March 2012

	DBD	DCD	ALL
Neurological death testing rate	74.3%		
Referral rate	90.7%	52.5%	59.9%
Approach rate	93.3%	54.4%	65.5%
Consent/authorisation rate	63.7%	49.8%	55.4%
- when SN-OD not involved in approach	53.3%	30.3%	37.6%
- when SN-OD involved in approach	67.9%	64.1%	65.8%
- when patient on ODR	91.6%	76.5%	82.9%
- when SN-OD involved in approach and patient on ODR	92.6%	81.8%	86.5%
Conversion rate	54.5%	13.3%	25.1%

Figure 13.3 Stages at which possible organ donors lose the opportunity to become actual donors, 1 April 2011 to 31 March 2012



* DBD - Possible donors meeting criteria for neurological testing
DCD - Possible donors not confirmed dead by neurological criteria where imminent death anticipated and treatment withdrawn

The annotated percentages represent the percentage of remaining patients that are lost at each stage, not the percentage of all possible donors

13.4 Potential donors

The number of potential donors and rates per million population (pmp) are shown in **Table 13.2**, by country and English Strategic Health Authority (SHA). The corresponding number of actual donors pmp can be found in Table 3.2 of Chapter 3. Potential DBD ranged from 11.4 pmp in East Midlands SHA to 31.0 pmp in London SHA. Potential DCD ranged from 33.0 pmp in South East Coast SHA to 98.1 pmp in North East SHA. Across the countries, there was a range of 41.2 potential donors pmp in Scotland to 83.1 potential donors pmp in Wales. Overall, there were 1,168 potential DBD (18.7 pmp) and 2,926 potential DCD (46.8 pmp) in the UK. **Tables 13.3** and **13.4** show more detailed information by country and English SHA for DBD and DCD data, respectively.

Table 13.2 Potential donor rates per million population (pmp), in the UK, 1 April 2011 to 31 March 2012, by country and English Strategic Health Authority

	Potential DBD		Potential DCD		**TOTAL**	
Country/Strategic Health Authority of donation	N	(pmp)	N	(pmp)	**N**	**(pmp)**
North East	75	(28.7)	256	(98.1)	**331**	**(126.8)**
North West	126	(18.2)	303	(43.7)	**429**	**(61.8)**
Yorkshire and the Humber	81	(15.3)	286	(54.0)	**367**	**(69.2)**
North of England	**282**	**(19.0)**	**845**	**(56.9)**	**1127**	**(75.9)**
East Midlands	51	(11.4)	167	(37.3)	**218**	**(48.7)**
West Midlands	91	(16.7)	322	(59.0)	**413**	**(75.6)**
East of England	96	(16.5)	249	(42.7)	**345**	**(59.2)**
Midlands and East	**238**	**(15.1)**	**738**	**(46.8)**	**976**	**(61.9)**
London	**243**	**(31.0)**	**386**	**(49.3)**	**629**	**(80.3)**
South East Coast	66	(15.0)	145	(33.0)	**211**	**(48.1)**
South Central	86	(20.8)	152	(36.7)	**238**	**(57.5)**
South West	62	(11.8)	245	(46.5)	**307**	**(58.3)**
South of England	**214**	**(15.5)**	**542**	**(39.3)**	**756**	**(54.8)**
England	**977**	**(18.7)**	**2511**	**(48.1)**	**3488**	**(66.8)**
Isle of Man	**2**	**(25.0)**	**5**	**(62.5)**	**7**	**(87.5)**
Channel Islands	**3**	**(20.0)**	**3**	**(20.0)**	**6**	**(40.0)**
Wales	**57**	**(18.9)**	**193**	**(64.1)**	**250**	**(83.1)**
Scotland	**72**	**(13.8)**	**143**	**(27.4)**	**215**	**(41.2)**
Northern Ireland	**57**	**(31.7)**	**71**	**(39.4)**	**128**	**(71.1)**
TOTAL	**1168**	**(18.7)**	**2926**	**(46.8)**	**4094**	**(65.5)**

Table 13.3 DBD key metrics from the Potential Donor Audit, 1 April 2011 to 31 March 2012, by country and English Strategic Health Authority

Country/Strategic Health Authority of donation	Number of patients where neurological death was suspected	Neurological death testing rate (%)	DBD referral rate (%)	Number of potential DBD donors	Number of potential DBD donors whose family were approached	DBD approach rate (%)	DBD consent/ authorisation rate (%)	Conversion rate of potential DBD donors (%)
North East	97	85.6	95.9	75	73	97.3	63.0	56.0
North West	183	73.8	89.6	126	116	92.1	64.7	54.8
Yorkshire and the Humber	112	73.2	94.6	81	74	91.4	67.6	58.0
North of England	**392**	**76.5**	**92.6**	**282**	**263**	**93.3**	**65.0**	**56.0**
East Midlands	82	70.7	84.1	51	49	96.1	63.3	56.9
West Midlands	135	71.9	94.1	91	86	94.5	60.5	54.9
East of England	122	80.3	91.8	96	94	97.9	64.9	59.4
Midlands and East	**339**	**74.6**	**90.9**	**238**	**229**	**96.2**	**62.9**	**57.1**
London	**339**	**74.6**	**95.3**	**243**	**226**	**93.0**	**54.4**	**44.9**
South East Coast	90	76.7	86.7	66	60	90.9	66.7	51.5
South Central	122	77.0	88.5	86	76	88.4	64.5	50.0
South West	93	66.7	87.1	62	58	93.5	63.8	56.5
South of England	**305**	**73.8**	**87.5**	**214**	**194**	**90.7**	**64.9**	**52.3**
England	**1375**	**75.0**	**91.7**	**977**	**912**	**93.3**	**61.8**	**52.7**
Isle of Man	**3**	**66.7**	**100.0**	**2**	**2**	**100.0**	**100.0**	**100.0**
Channel Islands	**4**	**75.0**	**100.0**	**3**	**3**	**100.0**	**66.7**	**66.7**
Wales	**89**	**68.5**	**89.9**	**57**	**52**	**91.2**	**65.4**	**56.1**
Scotland	**102**	**76.5**	**87.3**	**72**	**69**	**95.8**	**78.3**	**69.4**
Northern Ireland	**86**	**66.3**	**77.9**	**57**	**52**	**91.2**	**73.1**	**61.4**
TOTAL	**1659**	**74.3**	**90.7**	**1168**	**1090**	**93.3**	**63.7**	**54.5**

Table 13.4 DCD key metrics from the Potential Donor Audit, 1 April 2011 to 31 March 2012, by country and English Strategic Health Authority

Country/Strategic Health Authority of donation	Number of patients for whom imminent death was anticipated	DCD referral rate (%)	Number of potential DCD donors	Number of potential DCD donors whose family were approached	DCD approach rate (%)	DCD consent/ authorisation rate (%)	Conversion rate of potential DCD donors (%)
North East	462	74.0	256	98	38.3	57.1	10.9
North West	929	58.3	303	170	56.1	48.8	15.5
Yorkshire and the Humber	728	52.6	286	135	47.2	45.9	9.4
North of England	**2119**	**59.8**	**845**	**403**	**47.7**	**49.9**	**12.1**
East Midlands	417	33.3	167	81	48.5	42.0	10.2
West Midlands	621	54.4	322	178	55.3	47.2	12.4
East of England	403	67.0	249	136	54.6	48.5	12.4
Midlands and East	**1441**	**51.8**	**738**	**395**	**53.5**	**46.6**	**11.9**
London	**853**	**54.4**	**386**	**213**	**55.2**	**41.8**	**10.6**
South East Coast	341	35.2	145	74	51.0	52.7	11.0
South Central	352	51.1	152	94	61.8	43.6	11.2
South West	647	50.5	245	180	73.5	65.6	26.1
South of England	**1340**	**46.8**	**542**	**348**	**64.2**	**56.9**	**17.9**
England	**5753**	**54.0**	**2511**	**1359**	**54.1**	**49.4**	**13.1**
Isle of Man	**13**	**15.4**	**5**	**1**	**20.0**	**100.0**	**0.0**
Channel Islands	**10**	**10.0**	**3**	**1**	**33.3**	**100.0**	**33.3**
Wales	**466**	**58.8**	**193**	**103**	**53.4**	**55.3**	**16.6**
Scotland	**391**	**33.5**	**143**	**92**	**64.3**	**51.1**	**18.2**
Northern Ireland	**260**	**41.5**	**71**	**36**	**50.7**	**41.7**	**4.2**
TOTAL	**6893**	**52.5**	**2926**	**1592**	**54.4**	**49.8**	**13.3**

Tables 13.5 and **13.6** show more detailed information on the key metrics by Organ Donation Services Team (ODST) for DBD and DCD data, respectively. Specialist Nurses - Organ Donation work within an ODST, which covers an area of the UK. As seen in **Table 13.5**, the neurological death testing rate was highest for the Northern team, the DBD referral rate was also highest for the Northern team, the DBD approach rate was highest for the Eastern team and the DBD conversion rate was highest for the Scotland team. **Table 13.6** indicates that for DCD patients, the highest referral rate was for the Northern team, the highest approach rate was for the South West team and the highest conversion rate was also for the South West team. No account has been taken of the demographics of the populations within the teams which may impact on the rates presented.

Table 13.5 DBD key metrics from the Potential Donor Audit, 1 April 2011 to 31 March 2012, by Organ Donation Services Team (ODST)

ODST	Number of patients where neurological death was suspected	Neurological death testing rate (%)	DBD referral rate (%)	Number of potential DBD donors	Number of potential DBD donors whose family were approached	DBD approach rate (%)	DBD consent/ authorisation rate (%)	Conversion rate of potential DBD donors (%)
Eastern	126	81.0	92.1	99	97	98.0	64.9	59.6
London	308	75.3	95.5	223	208	93.3	54.8	45.7
Midlands	191	70.7	91.1	125	119	95.2	60.5	55.2
North West	204	74.5	89.7	141	128	90.8	64.1	53.2
Northern	99	85.9	96.0	77	75	97.4	62.7	55.8
Northern Ireland	86	66.3	77.9	57	52	91.2	73.1	61.4
Scotland	102	76.5	87.3	72	69	95.8	78.3	69.4
South Central	139	75.5	87.8	97	87	89.7	62.1	48.5
South East	125	74.4	88.8	89	81	91.0	63.0	48.3
South Wales	71	64.8	90.1	44	42	95.5	71.4	65.9
South West	82	67.1	87.8	55	51	92.7	68.6	60.0
Yorkshire	126	73.0	92.9	89	81	91.0	66.7	57.3
TOTAL	**1659**	**74.3**	**90.7**	**1168**	**1090**	**93.3**	**63.7**	**54.5**

Table 13.6	DCD key metrics from the Potential Donor Audit, 1 April 2011 to 31 March 2012, by Organ Donation Services Team (ODST)						
ODST	Number of patients for whom imminent death was anticipated	DCD referral rate (%)	Number of potential DCD donors	Number of potential DCD donors whose family were approached	DCD approach rate (%)	DCD consent/ authorisation rate (%)	Conversion rate of potential DCD donors (%)
Eastern	415	67.0	256	140	54.7	50.0	13.3
London	733	58.1	356	205	57.6	42.0	11.5
Midlands	904	46.9	448	234	52.2	44.4	10.7
North West	976	56.8	304	173	56.9	50.3	15.8
Northern	498	74.9	281	107	38.1	56.1	11.4
Northern Ireland	260	41.5	71	36	50.7	41.7	4.2
Scotland	391	33.5	143	92	64.3	51.1	18.2
South Central	478	51.3	195	126	64.6	46.0	13.8
South East	471	33.8	178	83	46.6	51.8	9.6
South Wales	409	59.2	180	98	54.4	55.1	16.1
South West	542	50.4	210	153	72.9	66.7	26.2
Yorkshire	816	50.0	304	145	47.7	46.2	9.9
TOTAL	**6893**	**52.5**	**2926**	**1592**	**54.4**	**49.8**	**13.3**

Table 13.7 shows key metrics separately for patients who died in an ICU or an emergency department, for DBD and DCD, respectively. Note that patients are often referred to the SN-OD in the emergency department and then die in an ICU, but this table reports on the unit where the patient died. Although the DBD conversion rate appears higher for patients dying in emergency departments compared with ICUs, this should be interpreted with caution because the neurological death testing rate is much lower in the emergency departments leading to a relatively small number of potential donors.

Table 13.8 shows key metrics separately for adult and paediatric patients, for DBD and DCD, respectively. Note that of the 125 paediatric patients for whom neurological death was suspected, tests were not performed on 52 patients, 10 of whom were less than two months post term.

Table 13.7 DBD and DCD key metrics from the Potential Donor Audit, 1 April 2011 to 31 March 2012, by unit where the patient died

Potential donor type	Unit where patient died	Number of patients who met referral criteria[1]	Neurological death testing rate (%)	Referral rate (%)	Number of potential donors	Number of potential donors whose family were approached	Approach rate (%)	Consent/ authorisation rate (%)	Number of actual donors[2]	Conversion rate of potential donors (%)
DBD	Critical care	1549	77.7	93.2	1140	1064	93.3	63.3	618	54.2
	Emergency dept.	110	25.5	55.5	28	26	92.9	76.9	18	64.3
	TOTAL	**1659**	**74.3**	**90.7**	**1168**	**1090**	**93.3**	**63.7**	**636**	**54.5**
DCD	Critical care	6449		53.8	2598	1495	57.5	51.6	379	14.6
	Emergency dept.	444		33.6	328	97	29.6	21.6	11	3.4
	TOTAL	**6893**		**52.5**	**2926**	**1592**	**54.4**	**49.8**	**390**	**13.3**

[1] DBD referral criteria: patients where neurological death was suspected; DCD referral criteria: patients for whom imminent death was anticipated
[2] Actual donors resulting from potential DBD donors includes 10 DCD donors from intensive care and 1 DCD donor from an emergency department

Table 13.8 DBD and DCD key metrics from the Potential Donor Audit, 1 April 2011 to 31 March 2012, by age group

Potential donor type	Age group	Number of patients who met referral criteria[1]	Neurological death testing rate (%)	Referral rate (%)	Number of potential donors	Number of potential donors whose family were approached	Approach rate (%)	Consent/ authorisation rate (%)	Number of actual donors[2]	Conversion rate of potential donors (%)
DBD	Adult (>=18)	1534	75.6	91.2	1100	1034	94.0	63.9	606	55.1
	Paediatric (<18)	125	58.4	84.0	68	56	82.4	58.9	30	44.1
	TOTAL	**1659**	**74.3**	**90.7**	**1168**	**1090**	**93.3**	**63.7**	**636**	**54.5**
DCD	Adult (>=18)	6605		53.3	2778	1543	55.5	50.2	379	13.6
	Paediatric (<18)	288		35.1	148	49	33.1	36.7	11	7.4
	TOTAL	**6893**		**52.5**	**2926**	**1592**	**54.4**	**49.8**	**390**	**13.3**

[1] DBD referral criteria: patients where neurological death was suspected; DCD referral criteria: patients for whom imminent death was anticipated
[2] Actual donors resulting from potential DBD donors includes 11 DCD donors aged 18 years and over

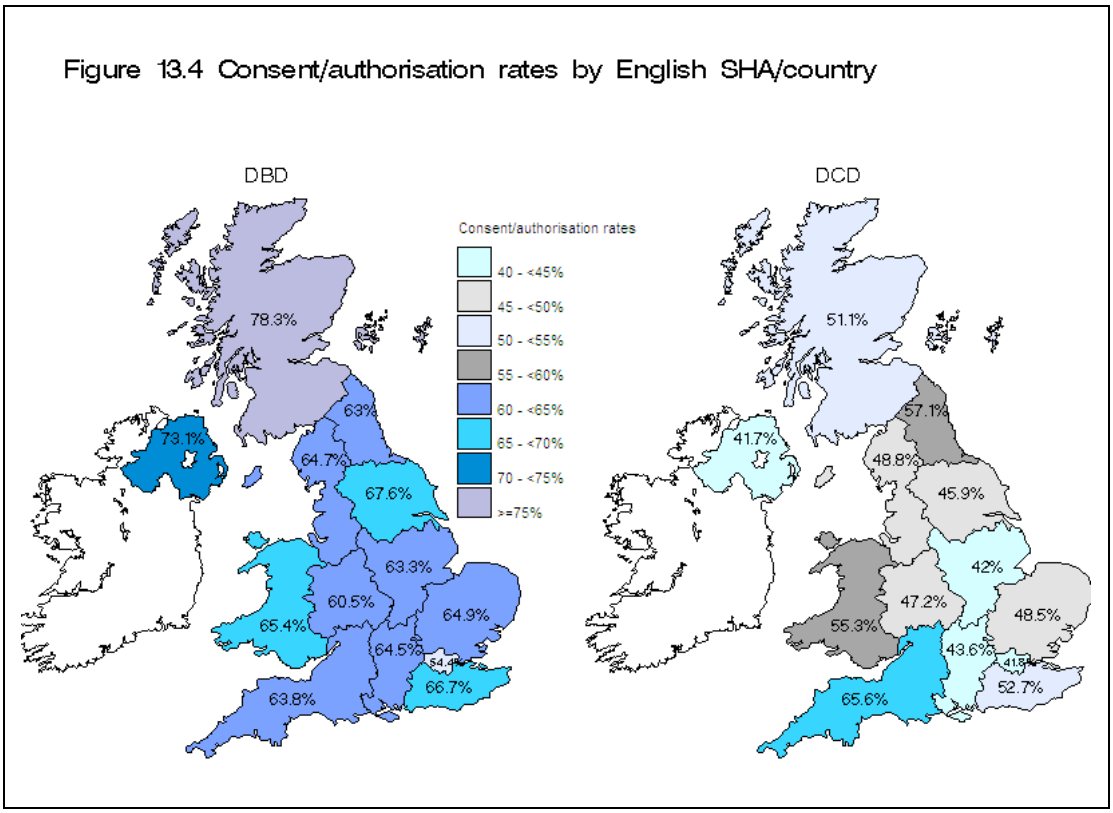
13.5 Consent/authorisation rates

The overall DBD consent/authorisation rate was 63.7% and the 95% confidence limits for this percentage are 60.8% - 66.6%. For DCD, the overall rate was 49.8% and the 95% confidence limits are 47.3% - 52.3%.

Consent/authorisation rates by English SHA or country are illustrated in **Figure 13.4** and by Organ Donation Services Team in **Figure 13.5** for both DBD and DCD. Caution should be applied when interpreting these consent/authorisation rates as no adjustment has been made for the mix of patients in terms of age, sex and ethnicity.

Across the English SHA and countries, the DBD consent/authorisation rates range from 54.4% in the London SHA to 78.3% in Scotland. DCD consent/authorisation rates range from 41.7% in Northern Ireland to 65.6% in the South West SHA.

Figure 13.4 Consent/authorisation rates by English SHA/country



Across the Organ Donation Services Teams, the DBD consent/authorisation rates range from 54.8% in the London team to 78.3% in the Scotland team. DCD consent/authorisation rates range from 41.7% in the Northern Ireland team to 66.7% in the South West team.

Figure 13.5 Consent/authorisation rates by Organ Donation Services Team

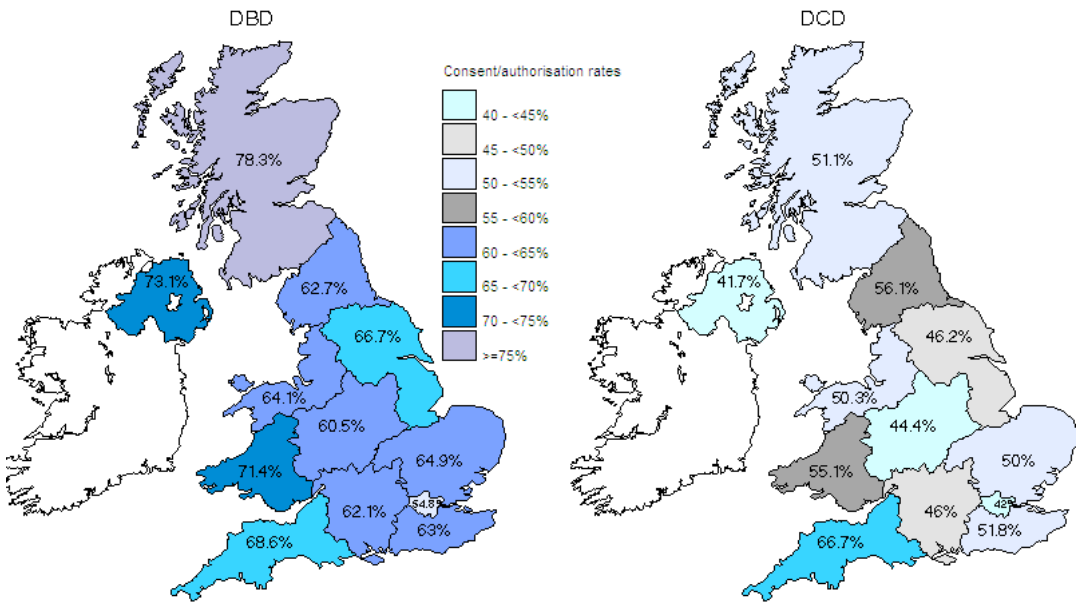


Table 13.9 shows the consent/authorisation rate separately for white patients and patients from ethnic minority groups. The DBD consent/authorisation rates for white patients and patients from ethnic minority groups were 69.1% and 29.1%, respectively. A similar difference was observed for DCD consent/authorisation rates: 54.8% and 18.8%, respectively. Note that there were an additional 23 DBD and 98 DCD families approached where the ethnicity was not known or not reported.

Approximately half of families from ethnic minority groups approached for a decision about organ donation were in London, a further quarter were either in the Midlands or South Central, but most teams had a very small proportion, therefore accounting for some of the variation observed in overall consent/authorisation rates between teams. Note that consent/authorisation rates have not been provided where the number of families approached is less than ten.

Table 13.9 DBD and DCD consent/authorisation rates from the Potential Donor Audit, 1 April 2011 to 31 March 2012, by Organ Donation Services Team (ODST) and ethnicity

ODST	White potential donors					Potential donors from ethnic minority groups					All
	Number of potential DBD donors whose family were approached	DBD consent/ authorisation rate (%)	Number of potential DCD donors whose family were approached	DCD consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)	Number of potential DBD donors whose family were approached	DBD consent/ authorisation rate (%)	Number of potential DCD donors whose family were approached	DCD consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)[1]
Eastern	90	67.8	127	52.8	**59.0**	5	-	7	-	**33.3**	**56.1**
London	130	68.5	146	52.1	**59.8**	77	31.2	51	19.6	**26.6**	**48.4**
Midlands	98	69.4	193	50.8	**57.0**	20	20.0	23	13.0	**16.3**	**49.9**
North West	114	67.5	148	54.1	**59.9**	8	-	8	-	**18.8**	**56.1**
Northern	75	62.7	95	62.1	**62.4**	0	-	2	-	**-**	**58.8**
Northern Ireland	51	74.5	36	41.7	**60.9**	1	-	0	-	**-**	**60.2**
Scotland	66	78.8	85	54.1	**64.9**	1	-	1	-	**-**	**62.7**
South Central	69	68.1	106	52.8	**58.9**	14	28.6	9	-	**21.7**	**52.6**
South East	76	65.8	76	53.9	**59.9**	4	-	4	-	**-**	**57.3**
South Wales	39	74.4	93	57.0	**62.1**	0	-	1	-	**-**	**60.0**
South West	45	73.3	137	70.1	**70.9**	6	-	6	-	**41.7**	**67.2**
Yorkshire	73	67.1	135	49.6	**55.8**	5	-	5	-	**20.0**	**53.5**
TOTAL	**926**	**69.1**	**1377**	**54.8**	**60.5**	**141**	**29.1**	**117**	**18.8**	**24.4**	**55.4**

[1] Includes 121 families approached where the ethnicity was not known or not reported

13.6 Specialist Nurse - Organ Donation (SN-OD) involvement

Table 13.10 shows the proportion of family approaches that involved a SN-OD, for DBD and DCD separately, and overall. Nationally, 71.1% of DBD and 57.9% of DCD family approaches involved a SN-OD, but there is wide variation between teams. **Table 13.11** shows the effect on the consent/authorisation rate when a SN-OD is involved or not involved in the approach to a family for a decision about organ donation. Evidence shows that the family are more likely to consent to/authorise donation when a trained SN-OD is involved in the approach and this is particularly apparent for potential DCD donors. Again, there is wide variation between teams. Caution should be applied when interpreting these rates as no account has been taken of approaches initiated by the family, ODR status or ethnicity.

Table 13.10 Percentage of family approaches involving a Specialist Nurse - Organ Donation (SN-OD) from the Potential Donor Audit, 1 April 2011 to 31 March 2012, by Organ Donation Services Team (ODST)

ODST	Number of potential DBD donors whose family were approached	Number of potential DBD donors where SN-OD involved in approach	Percentage of DBD approaches that involved a SN-OD (%)	Number of potential DCD donors whose family were approached	Number of potential DCD donors where SN-OD involved in approach	Percentage of DCD approaches that involved a SN-OD (%)	Overall percentage of DBD/DCD approaches that involved a SN-OD (%)
Eastern	97	78	80.4	140	97	69.3	**73.8**
London	208	181	87.0	205	153	74.6	**80.9**
Midlands	119	78	65.5	234	110	47.0	**53.3**
North West	128	98	76.6	173	115	66.5	**70.8**
Northern	75	34	45.3	107	37	34.6	**39.0**
Northern Ireland	52	39	75.0	36	22	61.1	**69.3**
Scotland	69	47	68.1	92	49	53.3	**59.6**
South Central	87	62	71.3	126	82	65.1	**67.6**
South East	81	56	69.1	83	54	65.1	**67.1**
South Wales	42	30	71.4	98	59	60.2	**63.6**
South West	51	17	33.3	153	60	39.2	**37.7**
Yorkshire	81	55	67.9	145	83	57.2	**61.1**
TOTAL	**1090**	**775**	**71.1**	**1592**	**921**	**57.9**	**63.2**

Table 13.11 DBD and DCD consent/authorisation rates with/without SN-OD involvement from the Potential Donor Audit, 1 April 2011 to 31 March 2012, by Organ Donation Services Team (ODST)

	SN-OD involved in approach					SN-OD not involved in approach					All
ODST	Number of potential DBD donors whose family were approached	DBD consent/ authorisation rate (%)	Number of potential DCD donors whose family were approached	DCD consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)	Number of potential DBD donors whose family were approached	DBD consent/ authorisation rate (%)	Number of potential DCD donors whose family were approached	DCD consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)
Eastern	78	67.9	97	60.8	**64.0**	19	52.6	43	25.6	**33.9**	**56.1**
London	181	53.0	153	47.1	**50.3**	27	66.7	52	26.9	**40.5**	**48.4**
Midlands	78	64.1	110	62.7	**63.3**	41	53.7	124	28.2	**34.5**	**49.9**
North West	98	72.4	115	73.0	**72.8**	30	36.7	58	5.2	**15.9**	**56.1**
Northern	34	58.8	37	70.3	**64.8**	41	65.9	70	48.6	**55.0**	**58.8**
Northern Ireland	39	84.6	22	63.6	**77.0**	13	38.5	14	7.1	**22.2**	**60.2**
Scotland	47	91.5	49	81.6	**86.5**	22	50.0	43	16.3	**27.7**	**62.7**
South Central	62	67.7	82	62.2	**64.6**	25	48.0	44	15.9	**27.5**	**52.6**
South East	56	62.5	54	59.3	**60.9**	25	64.0	29	37.9	**50.0**	**57.3**
South Wales	30	80.0	59	57.6	**65.2**	12	50.0	39	51.3	**51.0**	**60.0**
South West	17	76.5	60	93.3	**89.6**	34	64.7	93	49.5	**53.5**	**67.2**
Yorkshire	55	83.6	83	63.9	**71.7**	26	30.8	62	22.6	**25.0**	**53.5**
TOTAL	**775**	**67.9**	**921**	**64.1**	**65.8**	**315**	**53.3**	**671**	**30.3**	**37.6**	**55.4**

13.7 Comparison with previous year

Table 13.12 shows the key metrics from the PDA for the 2010-2011 and 2011-2012 financial years. An increase has been observed in the neurological death testing rate, but still more than a quarter of patients who meet the criteria are not tested. Details, such as the reasons for not testing, can be found in the PDA Annual Report available on the ODT website. Increases have been observed in the DBD and DCD approach rates, but there has been a slight decrease in consent/authorisation rates. Improvements have been observed in the proportion of potential donors becoming actual donors (conversion rates) and the largest increases have been observed in the rates of referral to the SN-ODs for both DBD and DCD.

Table 13.12 DBD and DCD key metrics from the Potential Donor Audit, by financial year

Potential donor type	Financial year	Number of patients who met referral criteria [1]	Neurological death testing rate (%)	Referral rate (%)	Number of potential donors	Number of potential donors whose family were approached	Approach rate (%)	Number of families who consented to/authorised donation	Consent/ authorisation rate (%)	Number of actual donors [2]	Conversion rate of potential donors (%)
DBD	2010-2011	1676	72.1	84.5	1144	1059	92.6	683	64.5	617	53.9
	2011-2012	1659	74.3	90.7	1168	1090	93.3	694	63.7	636	54.5
DCD	2010-2011	7223		44.3	2886	1362	47.2	695	51.0	344	11.9
	2011-2012	6893		52.5	2926	1592	54.4	793	49.8	390	13.3
TOTAL	**2010-2011**	**8899**		**51.9**	**4030**	**2421**	**60.1**	**1378**	**56.9**	**961**	**23.8**
	2011-2012	**8552**		**59.9**	**4094**	**2682**	**65.5**	**1487**	**55.4**	**1026**	**25.1**

[1] DBD referral criteria: patients where neurological death was suspected; DCD referral criteria: patients for whom imminent death was anticipated
[2] Actual donors resulting from potential DBD donors includes 6 DCD donors in 2010-2011 and 11 DCD donors in 2011-2012

Appendices

Appendix I provides details of the 652 deceased solid organ donors reported in 2011-2012. Details are given for each donating hospital and the hospitals have been grouped by English Strategic Health Authority and country. This appendix does not reflect regional retrieval rates: for example, in Wales three of the donating hospitals reported are listed under Liverpool for kidney retrievals.

The number of donors by donor country/Strategic Health Authority of residence is given for donors after brain death in **Appendix IIA** and donors after circulatory death in **Appendix IIB**.

The populations used for country/Strategic Health Authority per million population are given in **Appendix III** these populations are mid-2010 estimates based on *ONS 2001 Census* figures.

Appendix 1 Deceased solid organ donors and donated organs in the UK, 1 April 2011 - 31 March 2012 (2010-2011), by donating hospital

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
East Midlands													
Boston, Pilgrim Hospital	3	(1)	0	(0)	3	(1)	2	(1)	6	0	0	2	1
Chesterfield, Chesterfield Royal Hospital	2	(2)	0	(1)	2	(3)	1	(2)	4	0	0	1	0
Derby, Royal Derby Hospital	5	(4)	2	(1)	7	(5)	4	(4)	12	1	2	5	3
Kettering, Kettering General Hospital	3	(4)	3	(0)	6	(4)	3	(3)	11	1	0	2	0
Leicester, Glenfield General Hospital	0	(1)	0	(1)	0	(2)	0	(0)	0	0	0	0	0
Leicester, Leicester Royal Infirmary	9	(4)	1	(1)	10	(5)	9	(3)	20	1	2	9	6
Lincoln, Lincoln County Hospital	1	(4)	3	(2)	4	(6)	1	(3)	6	0	0	2	1
Northampton, Northampton General Hospital	2	(1)	1	(0)	3	(1)	2	(1)	5	0	0	2	0
Nottingham, Nottingham City Hospital	0	(1)	1	(1)	1	(2)	1	(1)	2	0	0	1	0
Nottingham, Nottingham University Hospital	6	(7)	6	(8)	12	(15)	8	(14)	24	1	5	7	6
Sutton-In-Ashfield, King's Mill Hospital	1	(2)	2	(1)	3	(3)	3	(2)	6	0	0	3	1
Total	**32**	**(31)**	**19**	**(16)**	**51**	**(47)**	**34**	**(34)**	**96**	**4**	**9**	**34**	**18**
East of England													
Basildon, Basildon Hospital	3	(1)	0	(0)	3	(1)	3	(1)	6	1	0	3	3
Bedford, Bedford Hospital	2	(4)	9	(2)	11	(6)	4	(4)	20	1	3	4	3
Bury St Edmunds, West Suffolk Hospital	1	(1)	2	(1)	3	(2)	1	(0)	6	0	0	1	1
Cambridge, Addenbrooke's Hospital	17	(15)	14	(10)	31	(25)	20	(17)	62	5	3	20	9
Chelmsford, Broomfield Hospital	1	(6)	0	(0)	1	(6)	1	(5)	2	0	0	1	0
Colchester, Colchester General Hospital	1	(2)	0	(2)	1	(4)	1	(4)	2	1	2	1	1
Great Yarmouth, James Paget Hospital	3	(0)	2	(0)	5	(0)	4	(0)	10	0	2	4	0
Harlow, Princess Alexandra Hospital	1	(1)	0	(2)	1	(3)	1	(2)	2	0	0	1	0
Huntingdon, Hinchingbrooke Hospital	1	(1)	3	(1)	4	(2)	0	(1)	8	0	0	0	0
Ipswich, Ipswich Hospital	3	(2)	3	(7)	6	(9)	5	(5)	12	0	0	5	2
Kings Lynn, The Queen Elizabeth Hospital	0	(1)	0	(1)	0	(2)	0	(0)	0	0	0	0	0
Luton, Luton And Dunstable Hospital	4	(4)	3	(3)	7	(7)	7	(4)	14	1	0	6	6
Norwich, Norfolk And Norwich University Hospital	7	(5)	4	(7)	11	(12)	8	(9)	22	3	2	7	3
Papworth, Papworth Hospital	2	(0)	1	(4)	3	(4)	2	(2)	6	0	0	2	0
Peterborough, Peterborough City Hospital	2	(1)	0	(0)	2	(1)	2	(0)	4	0	0	2	1
Peterborough, Peterborough District Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0
Stevenage, Lister Hospital	2	(1)	2	(3)	4	(4)	3	(3)	8	0	2	3	1
Watford, Watford General Hospital	4	(0)	1	(1)	5	(1)	5	(0)	10	1	0	5	2
Welwyn Garden City, Queen Elizabeth Hospital	3	(0)	0	(0)	3	(0)	3	(0)	6	1	2	3	1

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Westcliff On Sea, Southend Hospital	3	(4)	0	(1)	3	(5)	2	(3)	4	0	0	3	1
Total	**60**	**(49)**	**44**	**(46)**	**104**	**(95)**	**72**	**(60)**	**204**	**14**	**16**	**71**	**34**
London													
Barnet, Barnet General Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	1
Carshalton, St Helier Hospital	2	(0)	0	(0)	2	(0)	2	(0)	4	1	2	2	1
Chelsea, Chelsea And Westminster Hospital	1	(0)	0	(1)	1	(1)	1	(1)	2	0	0	1	0
Croydon, Mayday University Hospital	4	(1)	0	(0)	4	(1)	4	(1)	7	1	4	3	1
Enfield, Chase Farm Hospital	0	(1)	0	(1)	0	(2)	0	(1)	0	0	0	0	0
Epsom General Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0
Evelina Childrens Hospital	0	(0)	1	(0)	1	(0)	0	(0)	1	0	0	0	0
Harefield, Harefield Hospital	1	(0)	1	(0)	2	(0)	2	(0)	4	0	2	2	1
Harrow, Northwick Park Hospital	3	(2)	1	(2)	4	(4)	2	(2)	6	0	0	3	0
Ilford, King George Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Isleworth, West Middlesex University Hospital	2	(3)	0	(1)	2	(4)	1	(3)	4	0	0	1	1
Kingston, Kingston Hospital	1	(1)	0	(0)	1	(1)	0	(1)	0	0	0	1	0
London, Central Middlesex Hospital	0	(1)	0	(1)	0	(2)	0	(2)	0	0	0	0	0
London, Charing Cross Hospital	10	(4)	2	(2)	12	(6)	11	(5)	22	2	6	12	7
London, Great Ormond Street Hospital For Children	2	(1)	3	(0)	5	(1)	4	(1)	10	2	0	3	3
London, Guy's Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0
London, Hammersmith Hospital	1	(0)	0	(1)	1	(1)	1	(1)	2	0	0	1	1
London, Heart Hospital	1	(0)	1	(0)	2	(0)	2	(0)	4	0	0	2	2
London, King's College Hospital	8	(12)	5	(5)	13	(17)	13	(15)	25	2	8	13	10
London, National Hospital For Neurology And Neurosurgery	10	(10)	4	(3)	14	(13)	11	(10)	26	6	10	12	6
London, Newham General Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0
London, North Middlesex Hospital	2	(1)	0	(0)	2	(1)	2	(1)	4	1	0	2	2
London, Queen Elizabeth Hospital	0	(3)	0	(3)	0	(6)	0	(3)	0	0	0	0	0
London, Royal Brompton Hospital	0	(0)	1	(1)	1	(1)	1	(1)	2	0	0	1	0
London, Royal Free Hospital	4	(11)	1	(2)	5	(13)	3	(10)	8	1	2	4	2
London, St George's Hospital	19	(14)	4	(7)	23	(21)	22	(15)	45	6	16	22	13
London, St Mary's Hospital	3	(3)	1	(1)	4	(4)	3	(3)	6	0	2	4	1
London, St Thomas' Hospital	5	(3)	5	(2)	10	(5)	4	(4)	13	0	0	7	3
London, The London Chest Hospital	1	(0)	3	(0)	4	(0)	3	(0)	6	0	0	4	2
London, The Royal London Hospital (Whitechapel)	18	(14)	4	(4)	22	(18)	19	(17)	38	3	7	21	13
London, The Whittington Hospital	2	(2)	0	(0)	2	(2)	2	(2)	4	0	0	2	1
London, University College Hospital	0	(3)	1	(1)	1	(4)	1	(2)	2	0	0	0	1
London, University Hospital Lewisham	0	(2)	1	(1)	1	(3)	0	(3)	2	0	0	0	0

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
London, Whipps Cross Hospital	0	(0)	2	(0)	2	(0)	1	(0)	2	0	0	1	1
Orpington, Princess Royal University Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Romford, Queens Hospital	7	(9)	8	(1)	15	(10)	10	(9)	27	5	8	11	7
Sidcup, Queen Mary's Hospital	0	(1)	0	(0)	0	(1)	0	(0)	0	0	0	0	0
Southall, Ealing Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Stanmore, Royal National Orthopaedic Hospital	1	(0)	0	(0)	1	(0)	1	(0)	1	1	0	1	1
Uxbridge, Hillingdon Hospital	3	(0)	0	(1)	3	(1)	3	(1)	6	0	0	3	1
Total	**113**	**(107)**	**49**	**(42)**	**162**	**(149)**	**131**	**(119)**	**287**	**31**	**67**	**141**	**82**
North East													
Ashington, Wansbeck Hospital	2	(1)	3	(1)	5	(2)	2	(1)	10	0	0	2	1
Darlington, Darlington Memorial Hospital	0	(0)	5	(1)	5	(1)	1	(0)	10	0	0	1	0
Durham, University Hospital Of North Durham	4	(2)	0	(0)	4	(2)	4	(2)	8	0	4	4	4
Gateshead, Queen Elizabeth Hospital	2	(2)	2	(2)	4	(4)	1	(2)	8	0	0	1	0
Hartlepool, University Hospital Of Hartlepool	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0
Middlesbrough, The James Cook University Hospital	5	(4)	8	(3)	13	(7)	7	(5)	25	2	6	7	4
Newcastle, Freeman Hospital	1	(1)	3	(3)	4	(4)	2	(1)	8	0	0	1	1
Newcastle, Newcastle General Hospital	0	(11)	0	(6)	0	(17)	0	(8)	0	0	0	0	0
Newcastle, Royal Victoria Infirmary	19	(8)	4	(4)	23	(12)	19	(8)	42	5	22	18	14
North Shields, North Tyneside General Hospital	1	(1)	0	(1)	1	(2)	1	(0)	2	0	0	1	0
Northallerton, Friarage Hospital	0	(0)	1	(0)	1	(0)	0	(0)	2	0	0	0	0
South Shields, South Tyneside District General Hospital	2	(1)	1	(1)	3	(2)	1	(1)	6	0	0	1	1
Stockton-On-Tees, University Hospital Of North Tees	2	(2)	2	(1)	4	(3)	1	(2)	8	1	1	1	1
Sunderland, Sunderland Royal Hospital	3	(2)	3	(2)	6	(4)	3	(2)	10	0	0	3	1
Total	**42**	**(35)**	**32**	**(25)**	**74**	**(60)**	**43**	**(32)**	**141**	**8**	**33**	**41**	**27**
North West													
Ashton-Under-Lyne, Tameside General Hospital	2	(1)	1	(0)	3	(1)	2	(1)	6	0	0	2	0
Barrow-In-Furness, Furness General Hospital	1	(1)	0	(0)	1	(1)	0	(0)	2	0	0	0	0
Blackburn, Royal Blackburn Hospital	3	(5)	3	(1)	6	(6)	3	(5)	10	0	0	3	2
Blackpool, Blackpool Victoria Hospital	1	(3)	2	(1)	3	(4)	1	(2)	6	0	0	1	0
Bolton, Royal Bolton Hospital	1	(2)	3	(2)	4	(4)	3	(3)	8	1	0	2	3
Bury, Fairfield General Hospital	0	(2)	2	(0)	2	(2)	1	(2)	4	0	0	1	1
Carlisle, Cumberland Infirmary	0	(0)	2	(2)	2	(2)	1	(1)	4	0	0	0	1
Chester, Countess Of Chester Hospital	1	(2)	1	(0)	2	(2)	0	(1)	2	0	0	1	0
Crewe, Leighton Hospital	1	(2)	3	(0)	4	(2)	2	(2)	8	0	0	2	0
Lancaster, Royal Lancaster Infirmary	3	(2)	0	(2)	3	(4)	3	(2)	4	0	3	3	1

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Liverpool, Alder Hey Children's Hospital	1	(1)	0	(2)	1	(3)	1	(2)	2	1	0	1	0
Liverpool, Liverpool Heart And Chest Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0
Liverpool, Royal Liverpool University Hospital	3	(1)	2	(1)	5	(2)	2	(0)	8	1	2	2	2
Liverpool, University Hospital Aintree	2	(0)	1	(3)	3	(3)	3	(3)	6	0	0	3	1
Liverpool, Walton Centre For Neurology And Neurosurgery	10	(7)	4	(6)	14	(13)	9	(9)	26	1	4	10	4
Macclesfield, Macclesfield District General Hospital	1	(2)	0	(2)	1	(4)	1	(2)	2	0	0	1	0
Manchester, Manchester Royal Infirmary	6	(3)	0	(1)	6	(4)	6	(3)	8	1	8	6	2
Manchester, North Manchester General Hospital	0	(0)	2	(0)	2	(0)	1	(0)	4	0	0	1	1
Manchester, Royal Manchester Children's Hospital	2	(1)	0	(0)	2	(1)	2	(1)	4	1	0	2	1
Manchester, Trafford General Hospital	0	(1)	0	(0)	0	(1)	0	(0)	0	0	0	0	0
Manchester, Wythenshawe Hospital	5	(2)	2	(2)	7	(4)	3	(2)	12	2	0	3	1
Oldham, Royal Oldham Hospital (Rochdale Road)	1	(3)	1	(0)	2	(3)	2	(2)	4	0	0	2	0
Prescot, Whiston Hospital	2	(0)	1	(0)	3	(0)	2	(0)	6	0	1	2	0
Preston, Royal Preston Hospital	6	(6)	7	(5)	13	(11)	10	(5)	26	2	3	10	8
Rochdale, Rochdale Infirmary	0	(0)	0	(2)	0	(2)	0	(0)	0	0	0	0	0
Salford, Salford Royal	6	(7)	9	(1)	15	(8)	7	(7)	30	3	5	7	3
Southport, Southport District General Hospital	4	(4)	0	(2)	4	(6)	4	(3)	8	0	2	3	2
Stockport, Stepping Hill Hospital	1	(0)	0	(1)	1	(1)	1	(0)	2	1	0	1	1
Warrington, Warrington Hospital	0	(3)	1	(1)	1	(4)	0	(4)	2	0	0	0	0
Whitehaven, West Cumberland Hospital	1	(1)	2	(0)	3	(1)	1	(1)	6	0	0	1	1
Wigan, Royal Albert Edward Infirmary	3	(0)	0	(0)	3	(0)	3	(0)	6	2	4	3	3
Wirral, Arrowe Park Hospital	3	(4)	3	(2)	6	(6)	3	(3)	12	0	2	3	2
Total	**71**	**(66)**	**52**	**(39)**	**123**	**(105)**	**78**	**(66)**	**230**	**16**	**34**	**77**	**40**
South Central													
Aylesbury, Stoke Mandeville Hospital	4	(2)	1	(0)	5	(2)	4	(2)	10	0	0	4	2
Basingstoke, North Hampshire Hospital	0	(2)	1	(2)	1	(4)	0	(4)	2	0	0	0	0
Milton Keynes, Milton Keynes General Hospital	1	(4)	0	(0)	1	(4)	1	(3)	2	0	2	1	1
Newport, St Mary's Hospital	1	(1)	1	(0)	2	(1)	2	(1)	4	0	0	2	0
Oxford, John Radcliffe Hospital	15	(20)	5	(7)	20	(27)	19	(24)	39	1	6	18	8
Portsmouth, Queen Alexandra Hospital	8	(0)	2	(3)	10	(3)	10	(2)	20	0	2	10	3
Reading, Royal Berkshire Hospital	1	(4)	1	(2)	2	(6)	2	(6)	4	0	0	2	0
Slough, Wexham Park Hospital	3	(4)	1	(1)	4	(5)	4	(5)	8	0	0	4	2
Southampton, Southampton University Hospitals	9	(8)	5	(5)	14	(13)	12	(11)	27	0	4	12	6
Winchester, Royal Hampshire County Hospital	1	(0)	1	(0)	2	(0)	1	(0)	4	0	0	1	0
Wycombe, Wycombe General Hospital	1	(2)	0	(0)	1	(2)	1	(2)	2	0	0	1	1
Total	**44**	**(47)**	**18**	**(20)**	**62**	**(67)**	**56**	**(60)**	**122**	**1**	**14**	**55**	**23**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
South East Coast													
Ashford, William Harvey Hospital	3	(1)	2	(2)	5	(3)	3	(3)	8	1	2	4	3
Brighton, Royal Sussex County Hospital	3	(3)	2	(0)	5	(3)	3	(3)	8	0	4	4	2
Camberley, Frimley Park Hospital	1	(1)	3	(2)	4	(3)	2	(1)	8	0	2	2	1
Canterbury, Kent And Canterbury Hospital	1	(0)	0	(2)	1	(2)	0	(0)	0	0	0	1	0
Chertsey, St Peter's Hospital	3	(2)	1	(1)	4	(3)	3	(1)	8	0	0	3	2
Chichester, St Richard's Hospital	1	(1)	0	(1)	1	(2)	1	(0)	2	0	2	1	1
Dartford, Darent Valley Hospital	0	(2)	1	(0)	1	(2)	1	(2)	2	0	0	1	1
Eastbourne, Eastbourne District General Hospital	3	(1)	2	(1)	5	(2)	4	(1)	9	1	6	3	1
Gillingham, Medway Hospital	4	(5)	0	(0)	4	(5)	4	(3)	7	2	6	4	3
Guildford, Royal Surrey County Hospital	2	(0)	2	(0)	4	(0)	2	(0)	6	0	2	3	1
Hastings, Conquest Hospital	2	(3)	1	(2)	3	(5)	3	(2)	6	1	2	3	2
Haywards Heath, Hurstwood Park Hospital	3	(5)	0	(1)	3	(6)	3	(5)	6	0	0	3	1
Haywards Heath, Princess Royal Hospital	0	(2)	0	(1)	0	(3)	0	(1)	0	0	0	0	0
Maidstone, Maidstone District General Hospital	0	(2)	3	(2)	3	(4)	2	(4)	4	0	0	3	1
Margate, Queen Elizabeth The Queen Mother Hospital	1	(0)	0	(0)	1	(0)	0	(0)	0	0	0	1	0
Redhill, East Surrey Hospital	1	(2)	1	(0)	2	(2)	1	(2)	2	0	0	1	1
Tunbridge Wells, Kent And Sussex Hospital	2	(1)	1	(1)	3	(2)	2	(1)	4	1	3	2	2
Worthing, Worthing Hospital	4	(5)	1	(2)	5	(7)	3	(5)	10	1	2	3	2
Total	**34**	**(36)**	**20**	**(18)**	**54**	**(54)**	**37**	**(34)**	**90**	**7**	**31**	**42**	**24**
South West													
Barnstaple, North Devon District Hospital	0	(3)	2	(0)	2	(3)	2	(3)	4	0	0	1	2
Bath, Royal United Hospital	0	(2)	3	(4)	3	(6)	1	(4)	6	0	0	1	1
Bournemouth, Royal Bournemouth General Hospital	3	(3)	1	(2)	4	(5)	2	(4)	6	0	2	3	2
Bristol, Bristol Royal Hospital For Children	3	(0)	0	(0)	3	(0)	3	(0)	6	2	4	3	2
Bristol, Bristol Royal Infirmary	3	(0)	5	(5)	8	(5)	6	(4)	14	2	2	7	3
Bristol, Frenchay Hospital	11	(7)	11	(10)	22	(17)	17	(12)	44	3	16	15	8
Bristol, Southmead Hospital	0	(0)	1	(0)	1	(0)	0	(0)	2	0	0	0	0
Cheltenham, Cheltenham General Hospital	0	(1)	1	(0)	1	(1)	0	(1)	2	0	0	0	0
Dorchester, Dorset County Hospital	0	(3)	3	(0)	3	(3)	1	(2)	6	0	0	1	1
Exeter, Royal Devon And Exeter Hospital (Wonford)	0	(3)	2	(2)	2	(5)	1	(3)	4	0	2	0	0
Gloucester, Gloucestershire Royal Hospital	0	(2)	3	(6)	3	(8)	1	(3)	6	0	0	1	0
Plymouth, Derriford Hospital	4	(3)	15	(11)	19	(14)	12	(7)	38	1	2	12	2
Poole, Poole General Hospital	0	(2)	1	(3)	1	(5)	1	(4)	1	0	0	1	0
Salisbury, Salisbury District Hospital	0	(2)	2	(1)	2	(3)	1	(2)	4	0	0	1	1

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Swindon, Great Western Hospital	2	(1)	4	(1)	6	(2)	3	(1)	12	0	0	3	0
Taunton, Taunton And Somerset Hospital (Musgrove Park)	2	(2)	2	(2)	4	(4)	3	(4)	8	1	0	3	2
Torquay, Torbay Hospital	3	(0)	5	(2)	8	(2)	6	(0)	14	1	0	7	4
Truro, Royal Cornwall Hospital (Treliske)	2	(0)	3	(1)	5	(1)	5	(0)	10	0	2	5	2
Weston-Super-Mare, Weston General Hospital	1	(2)	1	(1)	2	(3)	1	(3)	2	0	0	2	0
Yeovil, Yeovil District Hospital	1	(2)	1	(0)	2	(2)	1	(2)	4	0	0	1	0
Total	**35**	**(38)**	**66**	**(51)**	**101**	**(89)**	**67**	**(59)**	**193**	**10**	**30**	**67**	**30**
West Midlands													
Birmingham, Birmingham Children's Hospital	1	(0)	0	(1)	1	(1)	0	(1)	2	0	0	0	0
Birmingham, Birmingham Heartlands Hospital	1	(2)	0	(0)	1	(2)	1	(1)	2	0	0	1	0
Birmingham, City Hospital	2	(3)	1	(1)	3	(4)	2	(3)	6	0	2	2	0
Birmingham, Queen Elizabeth Hospital Birmingham	12	(10)	7	(5)	19	(15)	17	(11)	38	3	8	15	9
Birmingham, Selly Oak Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0
Burton-On-Trent, Queen's Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Coventry, University Hospital	8	(5)	5	(9)	13	(14)	9	(9)	22	2	8	9	7
Dudley, Russells Hall Hospital	0	(2)	1	(1)	1	(3)	0	(1)	2	0	0	0	0
Hereford, The County Hospital	2	(3)	2	(1)	4	(4)	2	(4)	8	1	0	2	2
Nuneaton, George Eliot Hospital	1	(0)	1	(0)	2	(0)	1	(0)	4	0	0	1	0
Redditch, The Alexandra Hospital	1	(0)	3	(2)	4	(2)	3	(1)	8	0	2	3	1
Shrewsbury, Royal Shrewsbury Hospital	0	(3)	1	(2)	1	(5)	1	(5)	2	0	0	1	0
Solihull, Solihull Hospital	0	(1)	1	(0)	1	(1)	1	(1)	2	0	0	1	1
Stafford, Stafford Hospital	2	(0)	0	(0)	2	(0)	2	(0)	3	0	0	2	1
Stoke, North Staffordshire Royal Infirmary	8	(12)	8	(4)	16	(16)	13	(15)	32	2	6	13	7
Stoke-On-Trent, University Hospital North Staffordshire	0	(0)	1	(0)	1	(0)	1	(0)	2	0	0	1	0
Sutton Coldfield, Good Hope District General Hosp.	2	(2)	2	(2)	4	(4)	3	(3)	6	0	4	3	1
Telford, The Princess Royal Hospital	1	(4)	0	(1)	1	(5)	1	(3)	2	1	1	1	0
Walsall, Manor Hospital	2	(2)	2	(2)	4	(4)	2	(3)	6	1	2	2	1
Warwick, Warwick Hospital	0	(0)	1	(1)	1	(1)	0	(1)	2	0	0	0	0
West Bromwich, Sandwell General Hospital	1	(1)	0	(0)	1	(1)	1	(0)	2	0	0	1	1
Wolverhampton, New Cross Hospital	4	(2)	2	(0)	6	(2)	5	(2)	12	0	2	4	2
Worcester, Worcestershire Royal Hospital	3	(2)	2	(2)	5	(4)	4	(3)	8	1	3	5	2
Total	**51**	**(55)**	**40**	**(35)**	**91**	**(90)**	**69**	**(69)**	**171**	**11**	**38**	**67**	**35**
Yorkshire and the Humber													
Barnsley, Barnsley District General Hospital	0	(1)	0	(3)	0	(4)	0	(2)	0	0	0	0	0
Bradford, Bradford Royal Infirmary	6	(6)	1	(0)	7	(6)	6	(5)	14	0	4	5	2

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Cottingham, Castle Hill Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0
Dewsbury, Dewsbury And District Hospital	1	(0)	1	(0)	2	(0)	1	(0)	4	0	0	1	0
Doncaster, Doncaster Royal Infirmary	3	(3)	2	(2)	5	(5)	4	(3)	10	1	2	3	3
Grimsby, Diana Princess Of Wales Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0
Halifax, Calderdale Royal Hospital	2	(1)	0	(1)	2	(2)	2	(2)	4	0	2	2	1
Harrogate, Harrogate District Hospital	1	(0)	1	(0)	2	(0)	0	(0)	2	0	0	1	0
Huddersfield, Huddersfield Royal Infirmary	5	(0)	3	(1)	8	(1)	6	(0)	14	2	8	5	2
Hull, Hull Royal Infirmary	5	(8)	4	(5)	9	(13)	5	(7)	18	1	4	4	4
Leeds, Leeds General Infirmary	9	(7)	3	(6)	12	(13)	9	(7)	24	5	5	9	6
Leeds, St James's University Hospital	2	(2)	3	(4)	5	(6)	1	(3)	8	0	0	1	1
Rotherham, Rotherham District General Hospital	1	(1)	3	(0)	4	(1)	1	(1)	8	0	2	1	1
Scarborough, Scarborough General Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0
Scunthorpe, Scunthorpe General Hospital	1	(0)	1	(0)	2	(0)	1	(0)	4	0	0	1	1
Sheffield, Northern General Hospital	1	(4)	2	(4)	3	(8)	2	(3)	5	0	0	2	0
Sheffield, Royal Hallamshire Hospital	3	(6)	1	(3)	4	(9)	2	(9)	8	0	1	2	1
Sheffield, Sheffield Children's Hospital	1	(0)	1	(0)	2	(0)	2	(0)	4	0	0	1	2
Wakefield, Pinderfields General Hospital	2	(2)	2	(4)	4	(6)	2	(2)	8	1	0	2	2
Worksop, Bassetlaw District General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
York, York District Hospital	1	(1)	1	(0)	2	(1)	1	(1)	4	0	0	1	0
Total	**45**	**(45)**	**29**	**(34)**	**74**	**(79)**	**46**	**(48)**	**141**	**10**	**28**	**42**	**26**
Channel Islands													
Guernsey, Princess Elizabeth Hospital	2	(0)	1	(0)	3	(0)	2	(0)	6	0	0	2	0
St Helier, Jersey General Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0
Total	**2**	**(2)**	**1**	**(0)**	**3**	**(2)**	**2**	**(2)**	**6**	**0**	**0**	**2**	**0**
Isle of Man													
Douglas, Nobles I-O-M Hospital	2	(0)	0	(0)	2	(0)	2	(0)	4	1	2	1	0
Total	**2**	**(0)**	**0**	**(0)**	**2**	**(0)**	**2**	**(0)**	**4**	**1**	**2**	**1**	**0**
England	**531**	**(511)**	**370**	**(326)**	**901**	**(837)**	**637**	**(583)**	**1685**	**113**	**302**	**640**	**339**
Northern Ireland													
Belfast, Antrim Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0
Belfast, Belfast City Hospital	0	(3)	0	(1)	0	(4)	0	(2)	0	0	0	0	0
Belfast, Mater Infirmorum Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	1
Belfast, Royal Belfast Hospital For Sick Children	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Belfast, Royal Victoria Hospital	16	(22)	2	(1)	18	(23)	16	(22)	33	3	15	16	11
Belfast, The Ulster Hospital	3	(3)	1	(0)	4	(3)	4	(3)	8	0	0	4	0
Coleraine, Causeway Hospital	3	(2)	0	(0)	3	(2)	1	(1)	6	1	0	1	1
Enniskillen, Erne Hospital	2	(1)	0	(0)	2	(1)	2	(1)	4	0	0	2	1
Londonderry, Altnagelvin Area Hospital	9	(3)	0	(0)	9	(3)	9	(3)	18	2	6	9	5
Portadown, Craigavon Area Hospital	1	(2)	0	(0)	1	(2)	0	(2)	2	0	0	0	0
Total	**36**	**(38)**	**3**	**(2)**	**39**	**(40)**	**34**	**(36)**	**75**	**6**	**21**	**34**	**19**
Scotland													
Aberdeen, Aberdeen Royal Infirmary	2	(4)	1	(0)	3	(4)	3	(4)	5	0	2	3	1
Airdrie, Monklands District General Hospital	1	(1)	0	(0)	1	(1)	1	(0)	2	0	0	1	0
Dumfries, Dumfries And Galloway Royal Infirmary	0	(1)	2	(0)	2	(1)	1	(1)	4	0	0	1	1
Dundee, Ninewells Hospital	9	(5)	1	(1)	10	(6)	10	(6)	20	2	4	10	5
Dunfermline, Queen Margaret Hospital	3	(2)	3	(1)	6	(3)	3	(2)	10	1	3	2	1
East Kilbride, Hairmyres Hospital	0	(0)	1	(0)	1	(0)	1	(0)	2	0	0	1	1
Edinburgh, Royal Hospital For Sick Children	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	1
Edinburgh, Royal Infirmary Of Edinburgh	4	(2)	3	(5)	7	(7)	4	(4)	13	0	0	3	3
Edinburgh, Western General Hospital	10	(16)	6	(3)	16	(19)	14	(17)	31	2	6	14	10
Glasgow, Victoria Infirmary	1	(4)	0	(0)	1	(4)	1	(3)	2	0	0	1	0
Glasgow, Golden Jubilee National Hospital	0	(0)	2	(0)	2	(0)	2	(0)	4	0	2	2	2
Glasgow, Royal Hospital For Sick Children	0	(0)	1	(1)	1	(1)	1	(1)	2	0	0	1	1
Glasgow, Southern General Hospital	2	(3)	1	(3)	3	(6)	2	(6)	6	0	0	2	0
Glasgow, Western Infirmary	0	(0)	2	(1)	2	(1)	0	(0)	3	0	0	0	0
Greenock, Inverclyde Royal Hospital	0	(0)	1	(0)	1	(0)	1	(0)	2	0	0	1	0
Glasgow, Golden Jubilee National Hospital	2	(0)	0	(1)	2	(1)	2	(1)	4	1	2	2	2
Inverness, Raigmore Hospital	2	(2)	0	(0)	2	(2)	2	(2)	4	0	0	2	2
Kilmarnock, Crosshouse Hospital	0	(1)	0	(1)	0	(2)	0	(1)	0	0	0	0	0
Kirkcaldy, Victoria Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0
Larbert, Forth Valley Royal Hospital	2	(0)	0	(0)	2	(0)	2	(0)	4	0	0	2	2
Livingston, St John's Hospital	3	(1)	2	(1)	5	(2)	3	(1)	7	0	1	3	0
Melrose, Borders General Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0
Paisley, Royal Alexandra Hospital	5	(3)	0	(0)	5	(3)	3	(3)	6	0	0	5	2
Perth, Perth Royal Infirmary	2	(1)	0	(0)	2	(1)	1	(1)	4	0	0	1	0
Stirling, Stirling Royal Infirmary	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	0
Wishaw, Wishaw General Hospital	1	(1)	2	(0)	3	(1)	1	(1)	6	0	2	1	0
Total	**53**	**(49)**	**28**	**(18)**	**81**	**(67)**	**62**	**(56)**	**149**	**6**	**22**	**62**	**34**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Wales													
Abergavenny, Nevill Hall Hospital	1	(5)	1	(2)	2	(7)	1	(7)	4	0	2	1	0
Aberystwyth, Bronglais Hospital	1	(2)	1	(0)	2	(2)	1	(2)	4	0	0	1	0
Bangor, Ysbyty Gwynedd District General Hospital	2	(2)	1	(1)	3	(3)	3	(2)	6	0	2	3	2
Bodelwyddan, Glan Clwyd District General Hospital	2	(1)	3	(3)	5	(4)	4	(1)	10	0	4	3	0
Bridgend, Princess Of Wales Hospital	7	(4)	1	(2)	8	(6)	6	(6)	14	2	4	7	1
Cardiff, University Of Wales Hospital	7	(11)	14	(13)	21	(24)	14	(16)	41	3	7	13	7
Carmarthen, Glangwili General Hospital	0	(3)	0	(1)	0	(4)	0	(3)	0	0	0	0	0
Haverford West, Withybush General Hospital	1	(2)	0	(1)	1	(3)	1	(2)	2	1	0	1	1
Llanelli, Prince Philips Hospital	1	(0)	2	(0)	3	(0)	0	(0)	4	0	0	1	0
Merthyr Tydfil, Prince Charles Hospital	2	(0)	1	(1)	3	(1)	2	(0)	6	0	0	2	2
Newport, Royal Gwent Hospital	1	(3)	4	(1)	5	(4)	3	(2)	8	1	0	4	1
Penarth, Llandough Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0
Pontypridd, Royal Glamorgan Hospital	2	(0)	1	(1)	3	(1)	2	(0)	4	1	0	3	1
Swansea, Morriston Hospital	3	(3)	5	(0)	8	(3)	5	(2)	16	2	2	5	2
Swansea, Singleton Hospital	1	(0)	0	(0)	1	(0)	0	(0)	0	0	0	1	0
Wrexham, Maelor General Hospital	1	(3)	1	(0)	2	(3)	1	(2)	4	1	0	1	1
Total	**32**	**(39)**	**35**	**(27)**	**67**	**(66)**	**43**	**(45)**	**123**	**11**	**21**	**46**	**18**

Appendix IIA Numbers of donors after brain death and organs retrieved in the UK, 1 April 2011 - 31 March 2012, by country/SHA

Country/Strategic Health Authority	Donors				Organs				
	All donors	pmp	Multi-organ donors	pmp	Kidney	Heart	Lung	Liver	Pancreas
North East	41	15.7	37	14.2	78	8	29	35	24
North West	63	9.1	56	8.1	114	14	36	56	28
Yorkshire and The Humber	48	9.1	41	7.7	89	10	23	40	21
North of England	**152**	**10.2**	**134**	**9.0**	**281**	**32**	**88**	**131**	**73**
East Midlands	32	7.1	29	6.5	63	4	10	28	17
West Midlands	50	9.2	44	8.1	90	11	32	45	25
East of England	68	11.7	62	10.6	125	19	17	66	30
Midlands and East	**150**	**9.5**	**135**	**8.6**	**278**	**34**	**59**	**139**	**72**
London	**75**	**9.6**	**67**	**8.6**	**135**	**17**	**40**	**72**	**44**
South East Coast	54	12.3	49	11.2	97	11	35	51	31
South Central	47	11.4	46	11.1	90	3	16	47	18
South West	43	8.2	41	7.8	82	12	26	43	24
South of England	**144**	**10.4**	**136**	**9.9**	**269**	**26**	**77**	**141**	**73**
England	**521**	**10.0**	**472**	**9.0**	**963**	**109**	**264**	**483**	**262**
Isle of Man	**3**	**37.5**	**3**	**37.5**	**6**	**2**	**2**	**2**	**0**
Channel Islands	**2**	**13.3**	**2**	**13.3**	**4**	**0**	**0**	**2**	**0**
Wales	**37**	**12.3**	**34**	**11.3**	**70**	**12**	**17**	**36**	**16**
Scotland	**53**	**10.2**	**47**	**9.0**	**97**	**7**	**22**	**49**	**28**
Northern Ireland	**36**	**20.0**	**32**	**17.8**	**69**	**6**	**19**	**32**	**18**
TOTAL	**652**	**10.4**	**590**	**9.4**	**1209**	**136**	**324**	**604**	**324**

Appendix IIB Numbers of donors after circulatory death and organs retrieved in the UK, 1 April 2011 - 31 March 2012, by country/SHA

Country/Strategic Health Authority	Donors				Organs				
	All donors	pmp	Multi-organ donors	pmp	Kidney	Heart	Lung	Liver	Pancreas
North East	28	10.7	6	2.3	53	0	2	6	2
North West	47	6.8	14	2.0	92	0	0	12	8
Yorkshire and The Humber	30	5.7	8	1.5	60	0	2	7	3
North of England	**105**	**7.1**	**28**	**1.9**	**205**	**0**	**4**	**25**	**13**
East Midlands	29	6.5	12	2.7	56	0	3	9	8
West Midlands	37	6.8	16	2.9	69	0	4	16	6
East of England	52	8.9	18	3.1	103	0	3	15	11
Midlands and East	**118**	**7.5**	**46**	**2.9**	**228**	**0**	**10**	**40**	**25**
London	**32**	**4.1**	**19**	**2.4**	**53**	**0**	**2**	**20**	**10**
South East Coast	23	5.2	10	2.3	40	0	2	12	5
South Central	19	4.6	12	2.9	37	0	0	12	5
South West	69	13.1	39	7.4	133	0	14	37	14
South of England	**111**	**8.0**	**61**	**4.4**	**210**	**0**	**16**	**61**	**24**
England	**366**	**7.0**	**154**	**2.9**	**696**	**0**	**32**	**146**	**72**
Isle of Man	**0**	**0.0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**
Channel Islands	**1**	**6.7**	**0**	**0.0**	**2**	**0**	**0**	**0**	**0**
Wales	**38**	**12.6**	**16**	**5.3**	**69**	**0**	**4**	**17**	**6**
Scotland	**28**	**5.4**	**14**	**2.7**	**50**	**0**	**4**	**13**	**7**
Northern Ireland	**3**	**1.7**	**2**	**1.1**	**6**	**0**	**2**	**2**	**1**
TOTAL	**436**	**7.0**	**186**	**3.0**	**823**	**0**	**42**	**178**	**86**

Appendix III Populations for SHA's, 2011-2012
Mid-2010 estimates based on ONS 2001 Census figures

SHA	Retrieval population million
North East	2.61
North West	6.94
Yorkshire and The Humber	5.30
North of England	**14.85**
East Midlands	4.48
West Midlands	5.46
East of England	5.83
Midlands and East	**15.77**
London	**7.83**
South East Coast	4.39
South Central	4.14
South West	5.27
South of England	**13.80**
England	**52.23**
Isle of Man	**0.08**
Channel Islands	**0.15**
Wales	**3.01**
Scotland	**5.22**
Northern Ireland	**1.80**
TOTAL	**62.49**

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